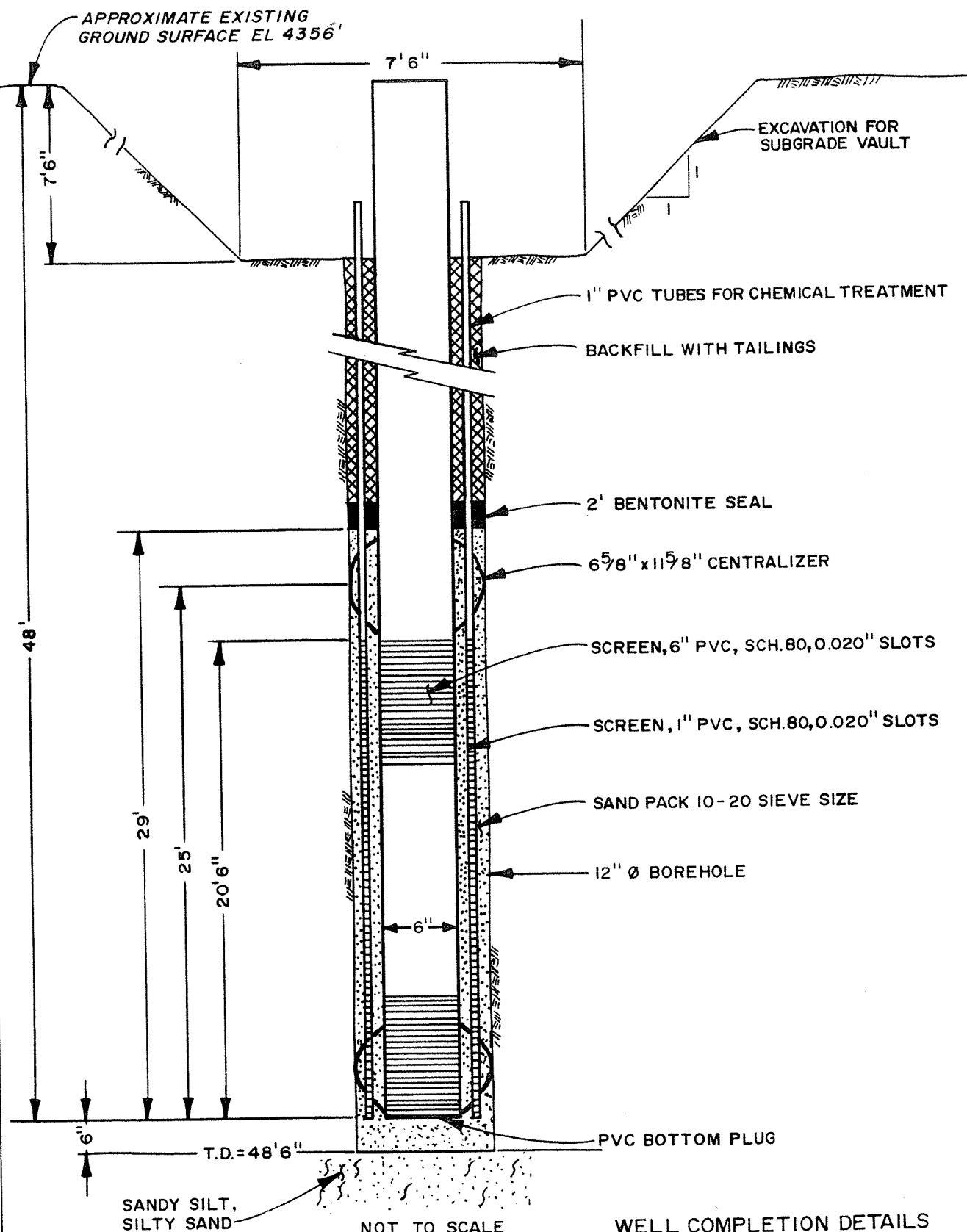


**Appendix B**  
**Borehole Logs and Well Installation Diagrams**  
**(Compact Disc)**

DRAWING RM84-112-A9  
NUMBER

CHECKED BY  
11-1-85  
APPROVED BY

DRAWN BY  
R. Sumpter



WELL COMPLETION DETAILS  
PUMPING WELL 1  
PREPARED FOR  
ANACONDA MINERALS COMPANY  
DENVER, COLORADO

DATE: 11-1-85  
SCALE: N.T.S.

FIGURE

DWG. NO.  
RM84-112-A9



Application #14112<sup>09</sup> Well #11<sup>41</sup>  
**WELL LOG AND REPORT TO THE STATE**  
**ENGINEER OF NEVADA**

Log No. 1915  
 Rec. May 26 1952  
 Well No.  
 Permit No. 14112<sup>1109</sup>  
 Do not fill in

Owner Anaconda Copper Mining Company Driller Mel Meyer  
 Address Box 632, Yerington Nevada Address 120 McAND Lane Lic. No. 3  
 Location of well: N.W. 1/4 NE. 1/4 Sec. 21, T. 13 N/S, R. 25 E, in Lyon County  
 or 3337 Ft. S. 89° - 55' E. of the West Common Corner of Sec. 16 and 21  
 Water will be used for MINING (DRAINING MINE) Total depth of well 314.  
 Size of drilled hole 14" Weight of casing per linear foot 37.7 -  
 Thickness of casing 1/4" - 3/16" Temp. of water 57  
 Diameter and length of casing 14" x 180' - 12" x 284'  
 (Casing 12" in diameter and under give inside diameter; casing 12" in diameter give outside diameter.)  
 If flowing well give flow in c.f.s. or g.p.m. and pressure.  
 If nonflowing well give depth of standing water from surface 70'  
 If flowing well describe control works.  
 (Type and size of valve, etc.)  
 Date of commencement of well 2-16-52 Date of completion of well 4-24-52  
 Type of well rig CABLE TOOLS

**LOG OF FORMATIONS**

From feet	To feet	Thickness feet	Type of material
0	55	55'	COARSE BURDEN
55	65	10	FINE SAND & GRAVEL
65	75	10	COARSE BURDEN
75	85	10	BAGGAGE HEAVING SAND & GRAVEL
85	95	10	SAND GRAVEL
95	107	12	SAND GRAVEL
107	113	6	DECOMPOSED ROCK
113	128	15	ROCK
128	136	8	ROCK
136	144	8	ROCK
144	155		HARD ROCK
155	314	159'	BROKEN ROCK

Water-bearing Formation, Casing Perforations, Etc.

Chief aquifer (water-bearing formation)

from 75 - to 314' ft.

Other aquifers

First water at 90 feet.

Casing perforated

from 110 to 284' ft.

Size of perforations

1/4 x 4"

(OVER)

WELL #1

From feet	To feet	Thickness	Type of material

Diam. casing	From feet	To feet	Length	"Remarks"—Seals, Grouting, Etc.
14"	0	180	180	14" 10 CASING WITH DRIVE SHOE
12"	0	286	286	12" 10 " " NO DRIVE SHOE.

Test Pumped 414 GPM. WITH 9.7 DD.  
Pump can Pump 1000 GPM. But BIST AT 750.

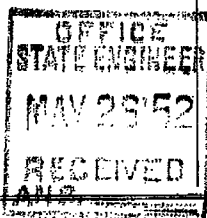
**(Not to be filled in by Driller)**

Signed \_\_\_\_\_  
Well Driller

By W. H. Miller

License No. 3

Dated 5-17-52, 1952



DRAWING RM84-112-A12  
NUMBER

A. Cervantes  
11-4-85  
CHECKED BY  
APPROVED BY

DRAWN  
BY

APPROXIMATE EXISTING  
GROUND SURFACE EL. ~~4365.80~~ 4363.03

EXCAVATION FOR  
SUBGRADE VAULT

1" PVC TUBES FOR CHEMICAL TREATMENT

BACKFILL WITH TAILINGS

6 5/8" x 1 5/8" CENTRALIZER

18" BENTONITE SEAL

SCREEN, 6" PVC, SCH. 80, 0.020" SLOTS

SCREEN, 1" PVC, SCH. 80, 0.020" SLOTS

SAND PACK 10-20 SIEVE SIZE

12" Ø BOREHOLE

PVC BOTTOM PLUG

GRAY CLAY

NOT TO SCALE

WELL COMPLETION DETAILS  
PUMPING WELL 2  
PREPARED FOR  
ANACONDA MINERALS COMPANY  
DENVER, COLORADO

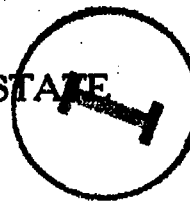
DATE: 11-4-85

SCALE: N.T.S.

FIGURE

DWG. NO.  
RM84-112-A12

# WELL LOG AND REPORT TO THE STATE ENGINEER OF NEVADA



Log No. 2424  
 Rec. Dec. 4 1952  
 Well No. \_\_\_\_\_  
 Permit No. 1112  
 Do not fill in

Well #2 AKA PWS112  
 Owner Anaconda Copper Co. Driller Lukins Bros.  
 Address Yerington, Nevada Address Yerington, Nev. Lic. No. 92  
 Location of well: S4 1/4 NE 1/4 Sec. 21, T. 3 N. 8, R. 22 E. in Lyons County  
 or \_\_\_\_\_  
 Water will be used for Mill Total depth of well 321 Ft.  
 Size of drilled hole 14" Weight of casing per linear foot \_\_\_\_\_  
 Thickness of casing 1/4" Temp. of water \_\_\_\_\_  
 Diameter and length of casing 14" Dia. 108 ft. Length 320 FT.  
 (Casing 12" in diameter and under give inside diameter; casing 12" in diameter give outside diameter.)  
 If flowing well give flow in c.f.s. or g.p.m. and pressure \_\_\_\_\_  
 If nonflowing well give depth of standing water from surface 34 Ft.  
 If flowing well describe control works \_\_\_\_\_  
 (Type and size of valve, etc.) \_\_\_\_\_  
 Date of commencement of well Oct. 2nd. 52 Date of completion of well Nov. 6th. 1952  
 Type of well rig Cable

LOG OF FORMATIONS				Water-bearing Formation, Casing Perforations, Etc.
From feet	To feet	Thickness feet	Type of material	
0	34		Top Soil	
34	42		Gravel 1st. Water Bearing	Chief aquifer (water-bearing formation)
42	75		Cement Gravel	from <u>75</u> to <u>320</u> ft.
75	320		Water Bearing Granite Diwright	Other aquifers _____
				_____
				_____
				_____
				First water at <u>34</u> feet.
				Casing perforated
				from <u>34</u> to <u>318</u> ft.
				Size of perforations
				Chisel Slot <u>1/8"</u>
				_____

Well #2 AKA Pwell 2

LOG OF FORMATIONS--Continued

From feet	To feet	Thickness	Type of material

CASING RECORD

Diam. casing	From feet	To feet	Length	"Remarks"—Seals, Grouting, Etc.
14"	0	320	320ft.	Sealed in Granite

GENERAL INFORMATION—Pumping Test, Quality of Water, Etc.

658 Per. Min.

WELL DRILLERS STATEMENT

This well was drilled under my jurisdiction and the above information is true to my best information and belief.

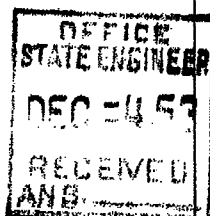
Signed.....Lukins Bros.  
Partner Well Driller

By.....William L. Lukins

License No.....97

Dated.....Dec. 13th., 1952.....

(Not to be filled in by Driller)

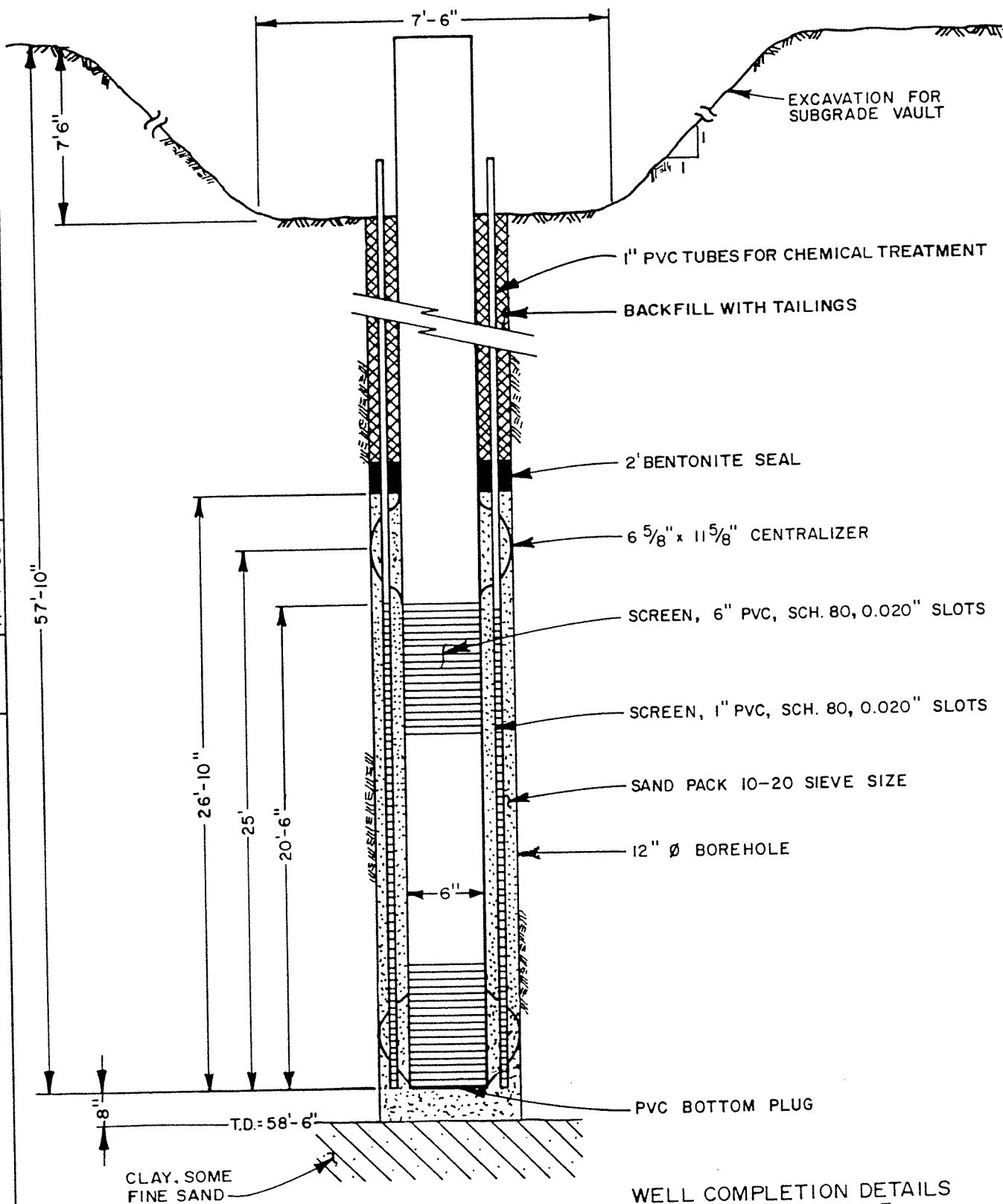


DRAWING RM84-112-A10  
NUMBER

CHECKED BY  
F.R. Downey  
11-4-85  
APPROVED BY

DRAWN  
BY

APPROXIMATE EXISTING  
GROUND SURFACE EL. = 4367.18'



WELL COMPLETION DETAILS  
PUMPING WELL 3

PREPARED FOR  
ANACONDA MINERALS COMPANY  
DENVER, COLORADO

DATE: 11-4-85  
SCALE: N.T.S.

FIGURE

DWG. NO.  
RM84-112-A10

# WELL LOG AND REPORT TO THE STATE ENGINEER OF NEVADA



Log No. 2423  
 Rec. Dec. 4 1933  
 Well No. ....  
 Permit No. 1411  
*Do not fill in*

Well No. 3 AKA PWell3

Owner Anaconda Copper Company Driller Lukins Bros.

Address Yerington Nevada Address Yerington, Nev. Lic. No. 97

Location of well: NW 1/4 NE 1/4 Sec. 21, T. 2 N. 8 E, R. 20 E, in Lyons County

or.....

Water will be used for Mill Total depth of well 280 Ft.

Size of drilled hole 14" Weight of casing per linear foot.....

Thickness of casing 3/8" Temp. of water.....

Diameter and length of casing 14" Dia. 240 Ft.  
 (Casing 12" in diameter and under give inside diameter; casing 12" in diameter give outside diameter.)

If flowing well give flow in c.f.s. or g.p.m. and pressure.....

If nonflowing well give depth of standing water from surface 40 Ft.

If flowing well describe control works.....  
 (Type and size of valve, etc.)

Date of commencement of well May 28th. 52 Date of completion of well Aug. 29th. 52

Type of well rig Cable Tool

## LOG OF FORMATIONS

From feet	To feet	Thickness feet	Type of material
0	40		Broken Granite Diright
40	180		Granite Diright
180	240		Granite Diright

## Water-bearing Formation, Casing Perforations, Etc.

Chief aquifer (water-bearing formation)

from 40 to 240 ft.

Other aquifers .....

.....

.....

.....

.....

First water at 40 feet.

Casing perforated

from 45 to 240 ft.

Size of perforations

1/8" Chisel Slot



LOG OF FORMATIONS--Continued

## CASING RECORD

### GENERAL INFORMATION—Pumping Test, Quality of Water, Etc.

### WELL DRILLERS STATEMENT

Signed Lukins Bros.  
Partner <sup>Well Driller</sup>

License No. 97

2. OFFICE  
STATE ENGINEER  
DEC - 4 53  
RECEIVED  
INS.

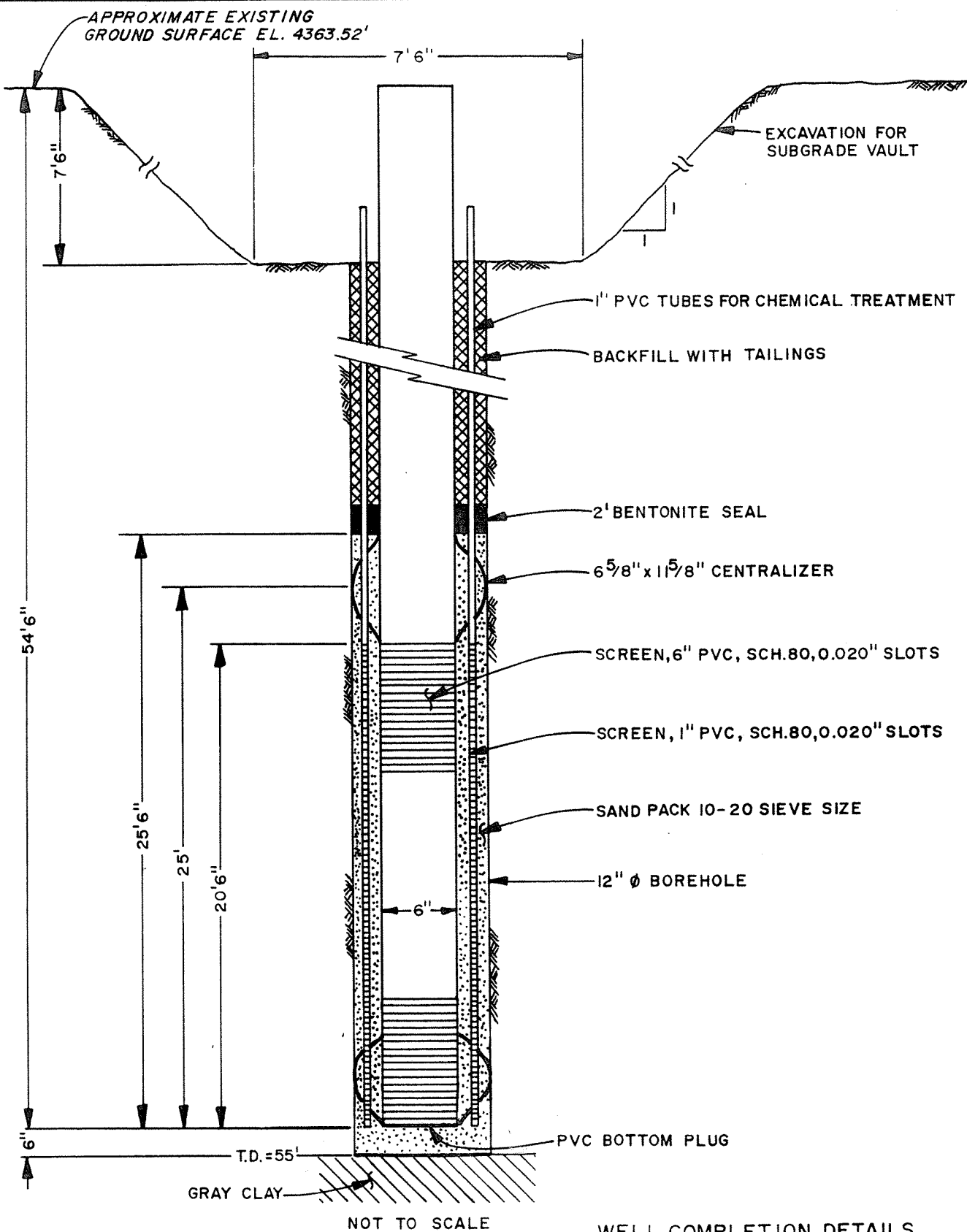
**(Not to be filled in by Driller)**



DRAWING RM84-112-A13  
NUMBER

A. Cervantes  
11-4-85  
CHECKED BY  
APPROVED BY

DRAWN  
BY

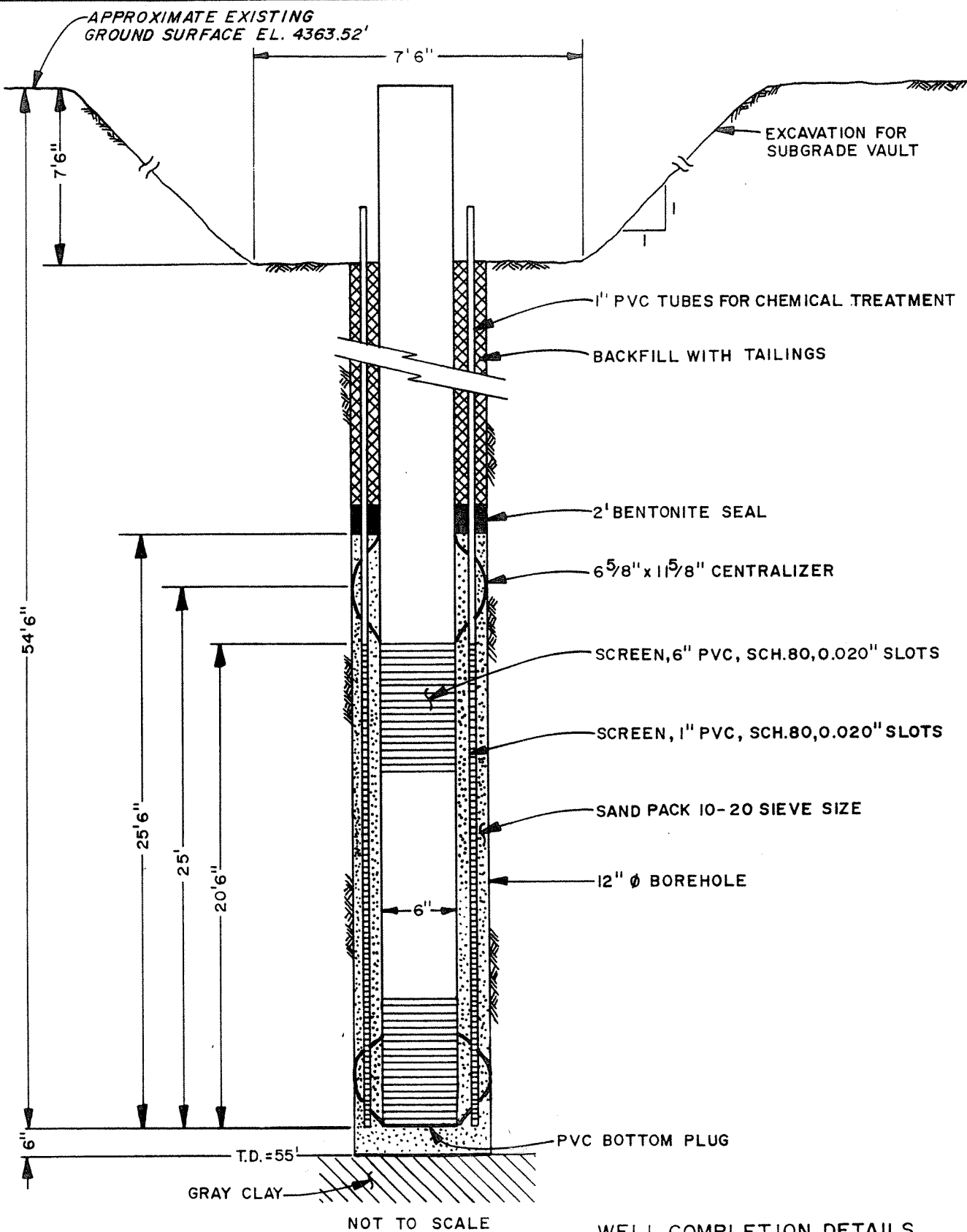


WELL COMPLETION DETAILS  
PUMPING WELL 5  
PREPARED FOR  
ANACONDA MINERALS COMPANY  
DENVER, COLORADO

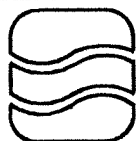
DRAWING RM84-112-A13  
NUMBER

A. Cervantes  
11-4-85  
CHECKED BY  
APPROVED BY

DRAWN  
BY



WELL COMPLETION DETAILS  
PUMPING WELL 5  
PREPARED FOR  
ANACONDA MINERALS COMPANY  
DENVER, COLORADO



Applied  
Hydrology  
Associates, Inc.

PW-6

LITHOLOGY LOG & COMPLETION DIAGRAM

PROJECT: YERINGTON PUMPBACK  
DRILLING CO: ANDRESEN EXPLORATION  
DRILLER: RANDY BARR  
CLIENT: M. FLICKINGER-A.E.R.L.  
GEOLOGIST/SUPERVISOR: N. HATFIELD  
AHA JOB#: 55-05  
DRILLING METHOD: HOLLOW STEM AUGER  
BORING STARTED: 10/21/98

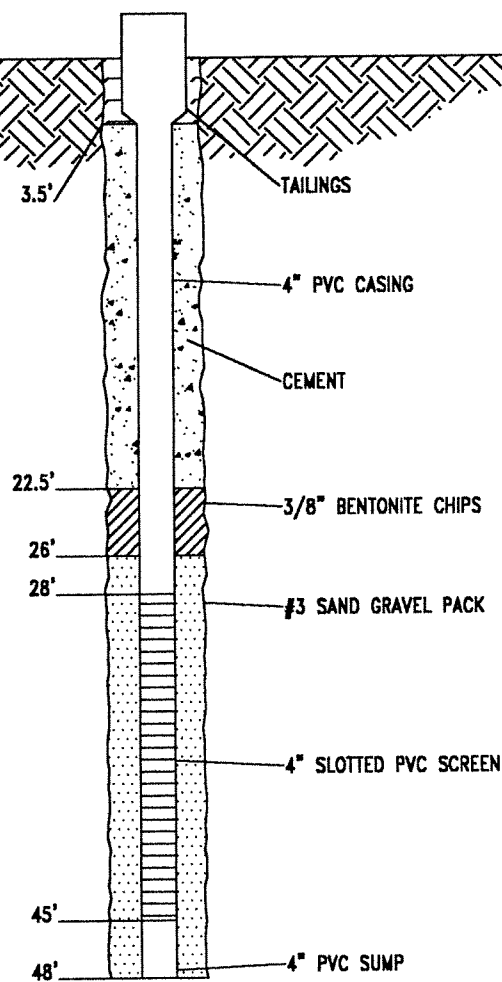
WELL TYPE: PUMPING WELL  
WELLHEAD TYPE: STICK-UP  
WELL COMPLETED: 10/21/98  
WELL DEVELOPED: 10/26/98  
DATE SURVEYED: 12/4/98  
SCREEN SLOT SIZE: 0.02"  
SCREEN TYPE: SCH 40 PVC  
FILTER PACK: #3 SAND

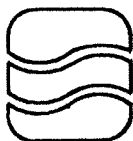
CASING DIAMETER: 4", 6" AT SURFACE  
CASING MATERIAL: SCH 40 PVC  
BORING DIAMETER: 12"  
TOP OF CASING ELEV. (FT): 4367.09  
GROUND ELEVATION (FT): 4366.59  
LOCATION: NORTH BERM  
NORTHING (FT): 45195.65  
EASTING (FT): 28904.15

LITHOLOGY LOG

DEPTH  
ft (bgs)

		0
		5
		10
		15
GRAVEL TAILINGS, gry/grn	18.0'	18
		20
CLAY, sandy, lt. olive brn	26.0'	25
		30
		35
		40
SAND, clayey, brn, med grained	45.0'	45
SAND, gry, med/coarse grained	46.7'	46
CLAY, silty, grn/gry	48.0'	48
		50
		55
		60
		65
		70





Applied  
Hydrology  
Associates, Inc.

PW-7

LITHOLOGY LOG & COMPLETION DIAGRAM

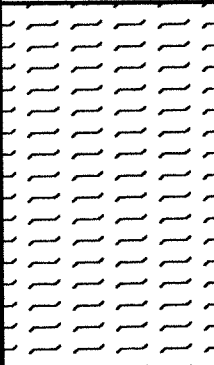
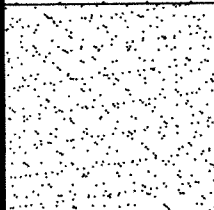
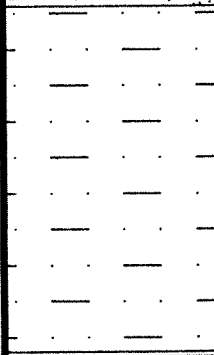
PROJECT: YERINGTON PUMPBACK  
DRILLING CO: ANDRESEN EXPLORATION  
DRILLER: RANDY BARR  
CLIENT: M. FLICKINGER-A.E.R.L.  
GEOLOGIST/SUPERVISOR: N. HATFIELD  
AHA JOB#: 55-05  
DRILLING METHOD: HOLLOW STEM AUGER  
BORING STARTED: 10/21/98

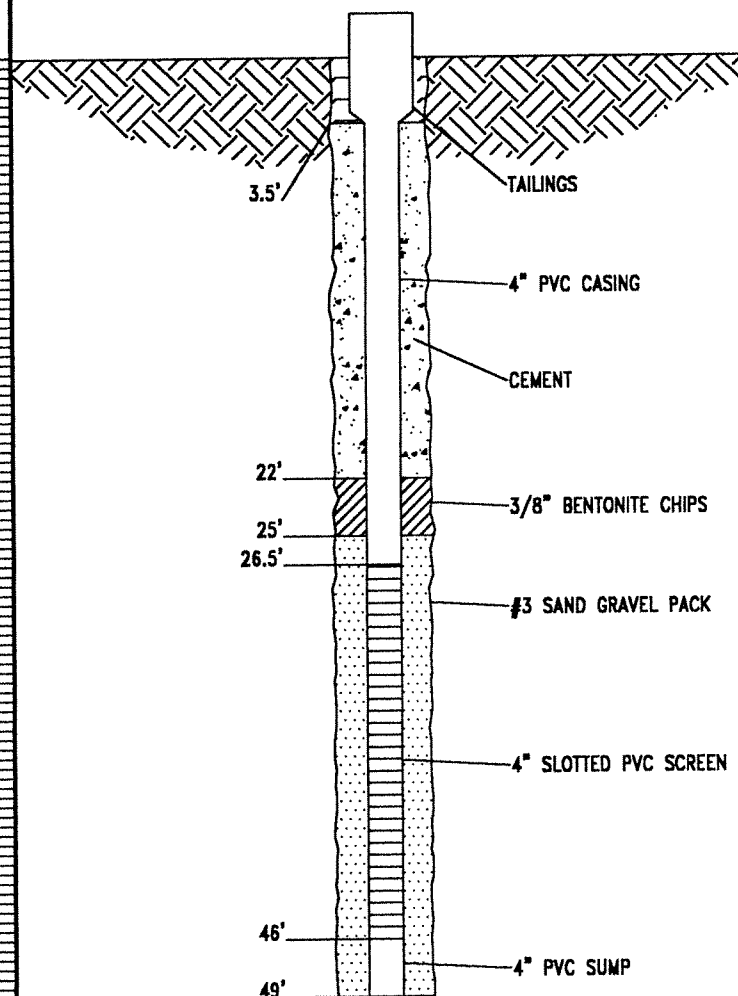
WELL TYPE: PUMPING WELL  
WELLHEAD TYPE: STICK-UP  
WELL COMPLETED: 10/22/98  
WELL DEVELOPED: 10/26/98  
DATE SURVEYED: 12/4/98  
SCREEN SLOT SIZE: 0.02"  
SCREEN TYPE: SCH 40 PVC  
FILTER PACK: #3 SAND

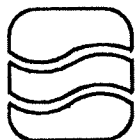
CASING DIAMETER: 4", 6" AT SURFACE  
CASING MATERIAL: SCH 40 PVC  
BORING DIAMETER: 12"  
TOP OF CASING ELEV. (FT): 4364.86  
GROUND ELEVATION (FT): 4364.36  
LOCATION: NORTH BERM  
NORTHING (FT): 45198.72  
EASTING (FT): 28404.76

LITHOLOGY LOG

DEPTH  
ft (bgs)

	GRAVEL TAILINGS, gry/grn	19.0'
	SAND, lt. brn, fine/med grained	30.0'
	SAND, clayey, lt. brn, fine/med grained CLAY, grn/gry	48.0' 49.0'





Applied  
Hydrology  
Associates, Inc.

PW-8

LITHOLOGY LOG & COMPLETION DIAGRAM

PROJECT: YERINGTON PUMPBACK  
DRILLING CO: ANDRESEN EXPLORATION  
DRILLER: RANDY BARR  
CLIENT: M. FLICKINGER-A.E.R.L.  
GEOLOGIST/SUPERVISOR: N. HATFIELD  
AHA JOB#: 55-05  
DRILLING METHOD: HOLLOW STEM AUGER  
BORING STARTED: 10/22/98

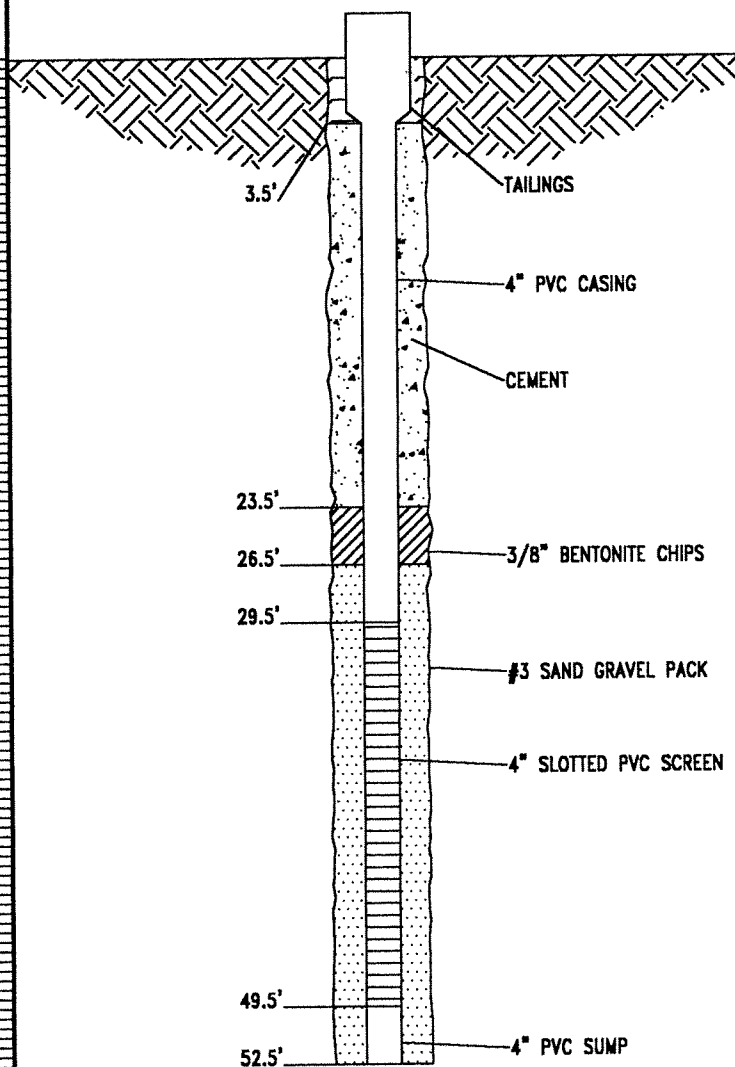
WELL TYPE: PUMPING WELL  
WELLHEAD TYPE: STICK-UP  
WELL COMPLETED: 10/22/98  
WELL DEVELOPED: 10/26/98  
DATE SURVEYED: 12/4/98  
SCREEN SLOT SIZE: 0.02"  
SCREEN TYPE: SCH 40 PVC  
FILTER PACK: #3 SAND

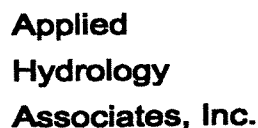
CASING DIAMETER: 4", 6" AT SURFACE  
CASING MATERIAL: SCH 40 PVC  
BORING DIAMETER: 12"  
TOP OF CASING ELEV. (FT): 4365.4  
GROUND ELEVATION (FT): 4364.9  
LOCATION: NORTH BERM  
NORTHING (FT): 45139.48  
EASTING (FT): 27904.35

LITHOLOGY LOG

DEPTH  
ft (bgs)

GRAVEL TAILINGS, sandy, gry/grn	17.0'
SAND, clayey, dk. brn/red, med grained	21.0'
CLAY, sandy, dk. gry	32.0'
SAND, clayey, med grained	51.0'
CLAY, silty, grn/gry	52.5'





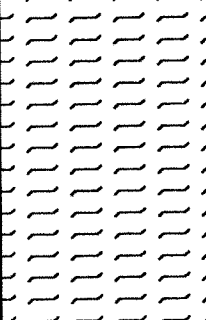
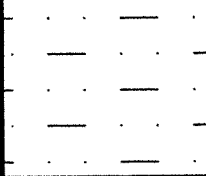
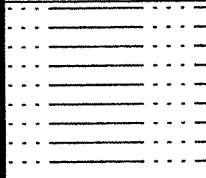
LITHOLOGY LOG &amp; COMPLETION DIAGRAM

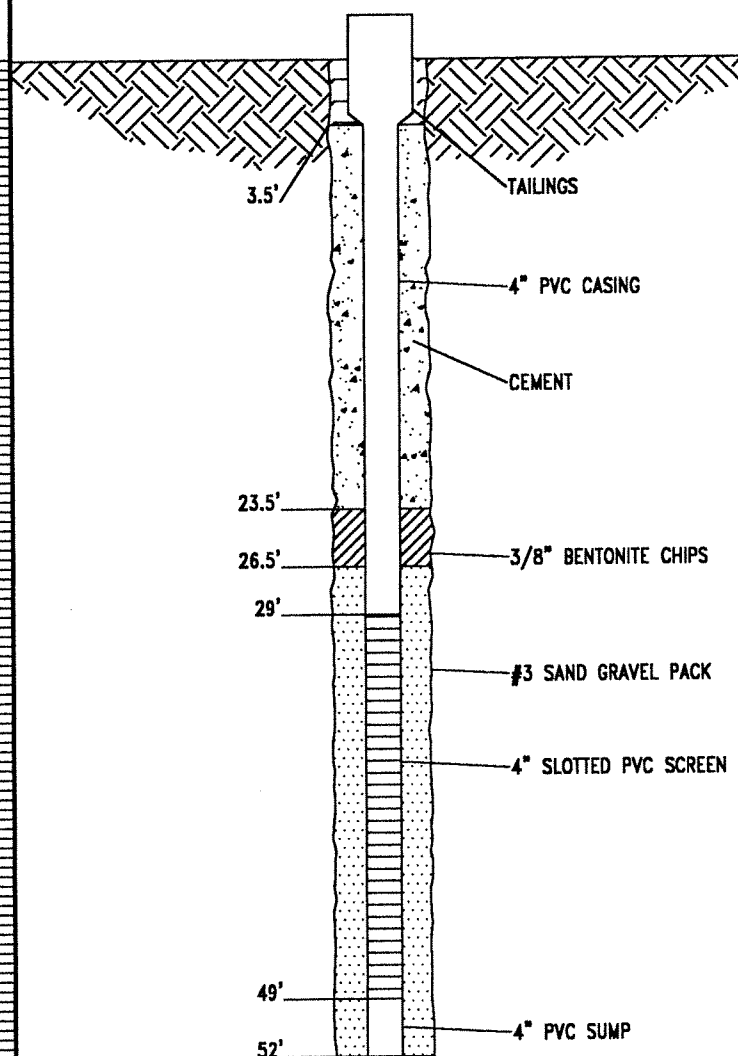
PROJECT: YERINGTON PUMPBACK  
DRILLING CO: ANDRESEN EXPLORATION  
DRILLER: RANDY BARR  
CLIENT: M. FLICKINGER-A.E.R.L.  
GEOLOGIST/SUPERVISOR: N. HATFIELD  
AHA JOB#: 55-05  
DRILLING METHOD: HOLLOW STEM AUGER  
BORING STARTED: 10/23/98

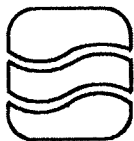
WELL TYPE: PUMPING WELL  
WELLHEAD TYPE: STICK-UP  
WELL COMPLETED: 10/23/98  
WELL DEVELOPED: 10/26/98  
DATE SURVEYED: 12/4/98  
SCREEN SLOT SIZE: 0.02"  
SCREEN TYPE: SCH 40 PVC  
FILTER PACK: #3 SAND

CASING DIAMETER: 4", 6" AT SURFACE  
CASING MATERIAL: SCH 40 PVC  
BORING DIAMETER: 12"  
TOP OF CASING ELEV. (FT): 4365.6  
GROUND ELEVATION (FT): 4365.1  
LOCATION: NORTH BERM  
NORTHING (FT): 45187.86  
EASTING (FT): 27404.42

DEPTH  
ft (bgs)

	GRAVEL TAILINGS, sandy, gry/grn	17.0'
	SAND, clayey, lt. tan/gry, med grained	23.0'
	SAND, clayey, brn/gry, coarse grained	33.0'
	CLAY, gry, silty, some sand	46.0'
	SAND, clayey, gry, med grained	51.0'
	CLAY, sandy, gry, fine grained	52.0'





Applied  
Hydrology  
Associates, Inc.

PW-10

LITHOLOGY LOG & COMPLETION DIAGRAM

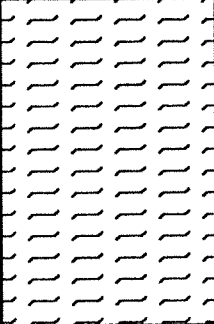

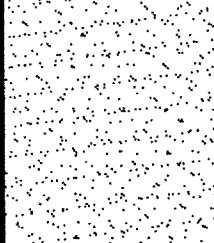
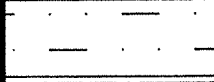
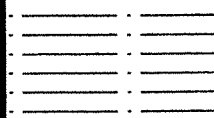

PROJECT: YERINGTON PUMPBACK  
DRILLING CO: ANDRESEN EXPLORATION  
DRILLER: RANDY BARR  
CLIENT: M. FLICKINGER-A.E.R.L.  
GEOLOGIST/SUPERVISOR: N. HATFIELD  
AHA JOB#: 55-05  
DRILLING METHOD: HOLLOW STEM AUGER  
BORING STARTED: 10/23/98

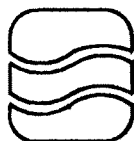
WELL TYPE: PUMPING WELL  
WELLHEAD TYPE: STICK-UP  
WELL COMPLETED: 10/23/98  
WELL DEVELOPED: 10/26/98  
DATE SURVEYED: 12/4/98  
SCREEN SLOT SIZE: 0.02"  
SCREEN TYPE: SCH 40 PVC  
FILTER PACK: #3 SAND

CASING DIAMETER: 4", 6" AT SURFACE  
CASING MATERIAL: SCH 40 PVC  
BORING DIAMETER: 12"  
TOP OF CASING ELEV. (FT): 4364.77  
GROUND ELEVATION (FT): 4364.27  
LOCATION: NORTH BERM  
NORTHING (FT): 45188.14  
EASTING (FT): 26903.84

LITHOLOGY LOG

DEPTH  
ft (bgs)

		
	GRAVEL TAILINGS, sandy, gry/grn	17.0'
		
	CLAY, sandy, tan/gry	26.0'
		
	SAND, silty, brn, med grained	39.0'
		
	SAND, clayey, brn	43.0'
		
	CLAY, sandy, gry/brn	50.0'
		
	CLAY, silty, grn/gry	51.0'
	</	



Applied  
Hydrology  
Associates, Inc.

PW-11

LITHOLOGY LOG & COMPLETION DIAGRAM

PROJECT: YERINGTON PUMPBACK  
DRILLING CO: ANDRESEN EXPLORATION  
DRILLER: RANDY BARR  
CLIENT: M. FLICKINGER-A.E.R.L.  
GEOLOGIST/SUPERVISOR: N. HATFIELD  
AHA JOB#: 55-05  
DRILLING METHOD: HOLLOW STEM AUGER  
BORING STARTED: 10/23/98

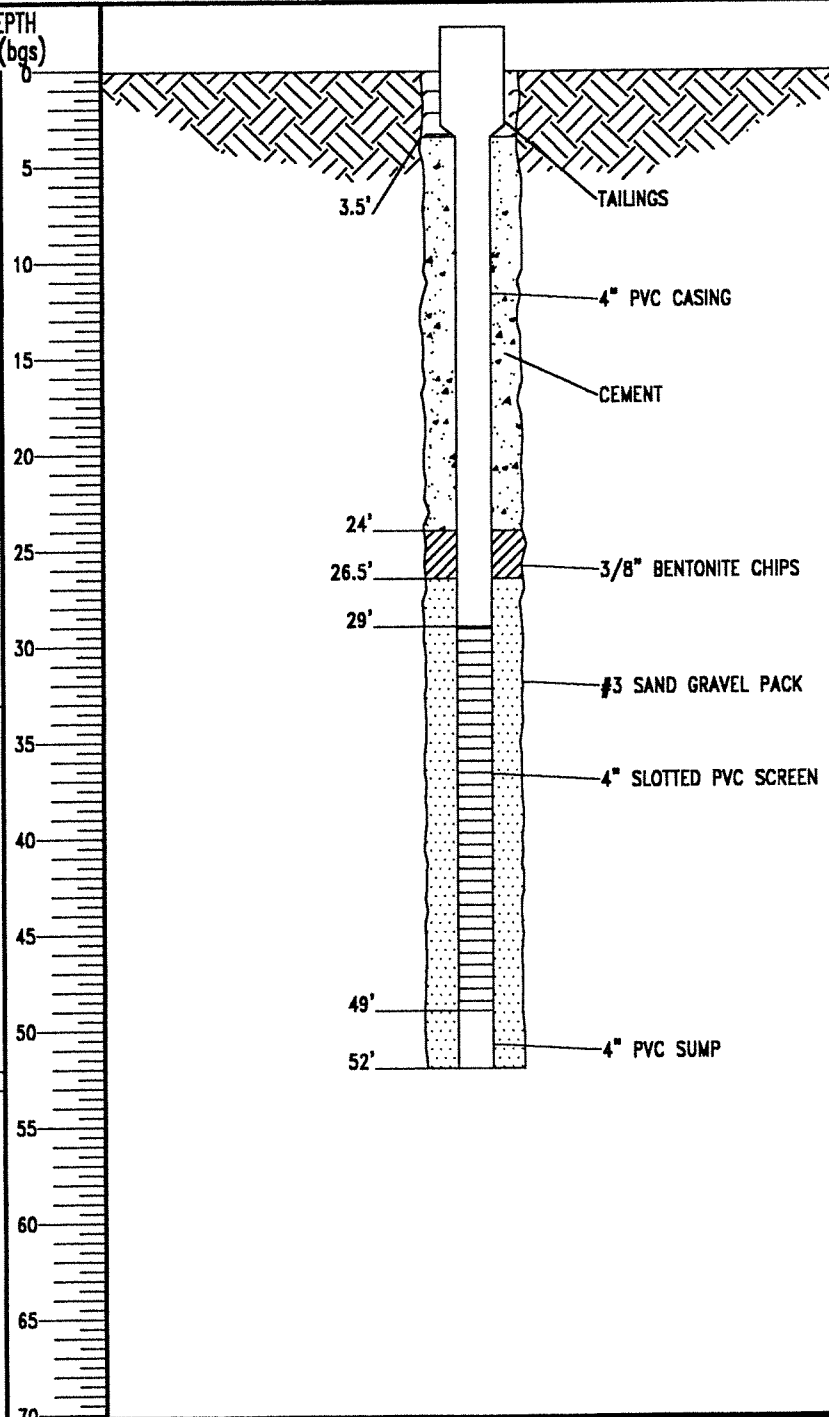
WELL TYPE: PUMPING WELL  
WELLHEAD TYPE: STICK-UP  
WELL COMPLETED: 10/24/98  
WELL DEVELOPED: 10/26/98  
DATE SURVEYED: 12/4/98  
SCREEN SLOT SIZE: 0.02"  
SCREEN TYPE: SCH 40 PVC  
FILTER PACK: #3 SAND

CASING DIAMETER: 4", 6" AT SURFACE  
CASING MATERIAL: SCH 40 PVC  
BORING DIAMETER: 12"  
TOP OF CASING ELEV. (FT): 4367.75  
GROUND ELEVATION (FT): 4367.25  
LOCATION: NORTH BERM  
NORTHING (FT): 45181.40  
EASTING (FT): 26402.94

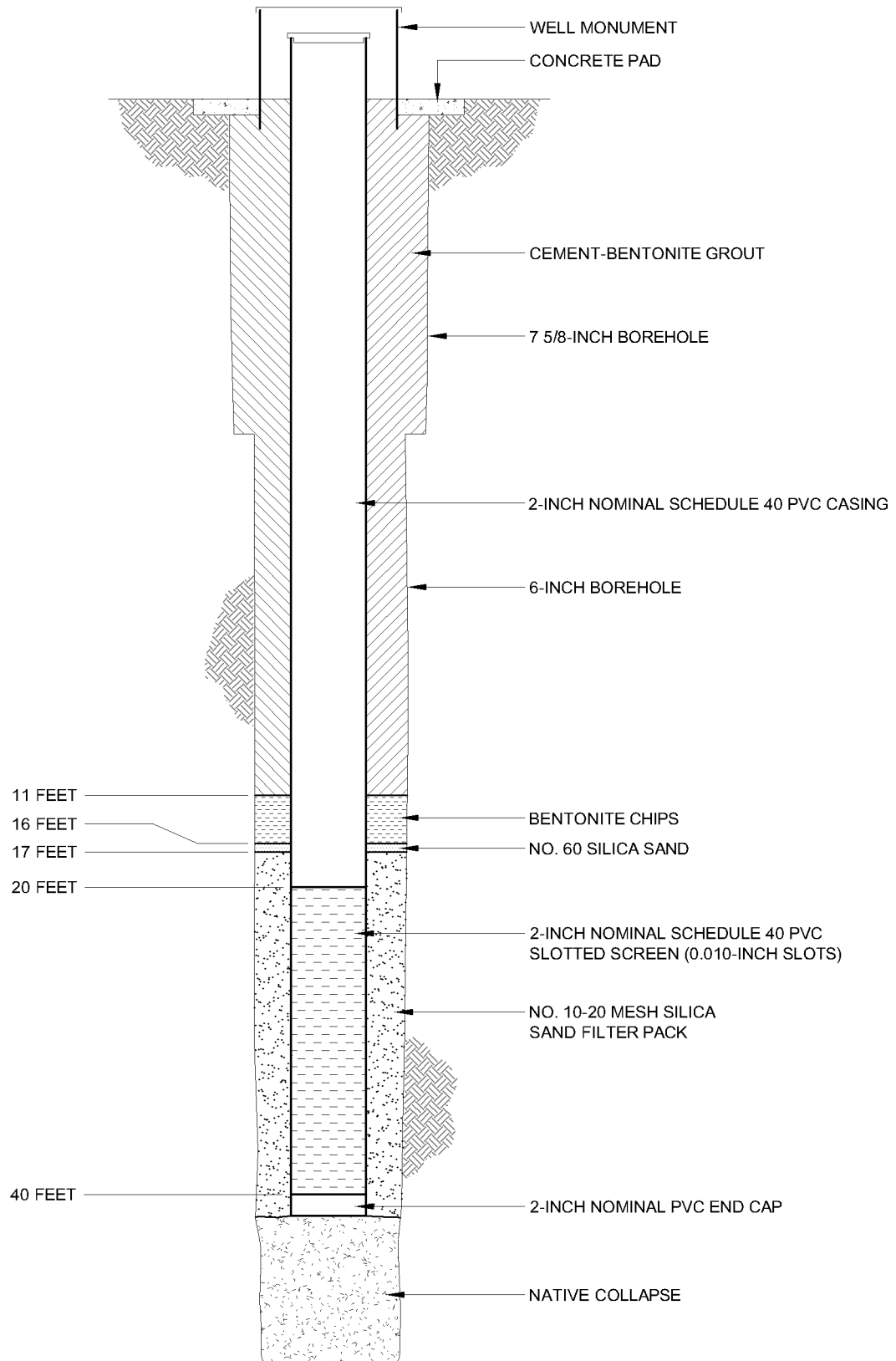
LITHOLOGY LOG

DEPTH  
ft (bgs)

	GRAVEL TAILINGS, gry/gm	16.0'
	SAND, clayey, tan/gry, med grained	33.0'
	SAND, brn, w/minor clay CLAY, gry, w/fine sand	52.0' 53.0'







NOT TO SCALE

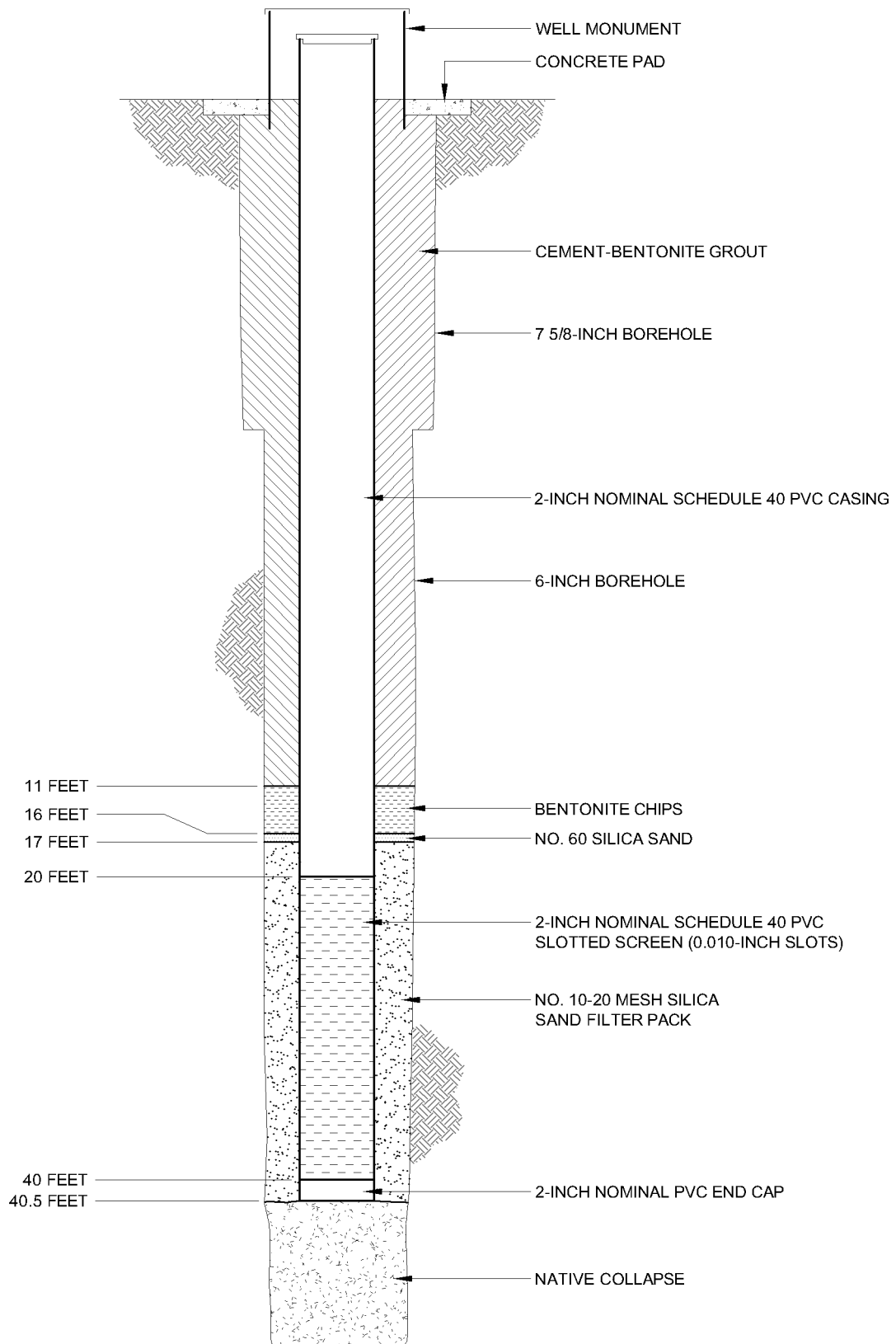
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-1S  
Construction Details**



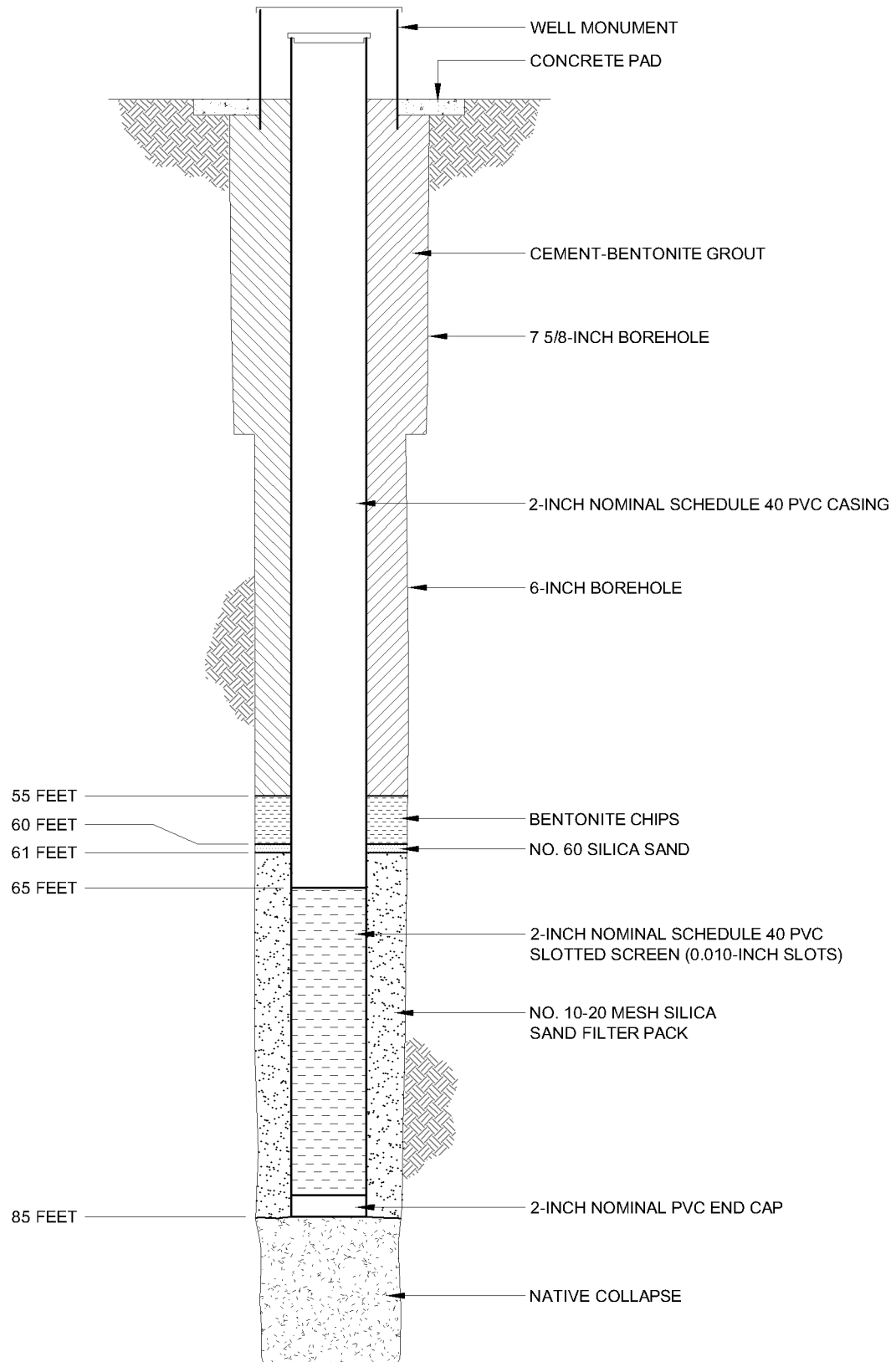
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-3S  
Construction Details**



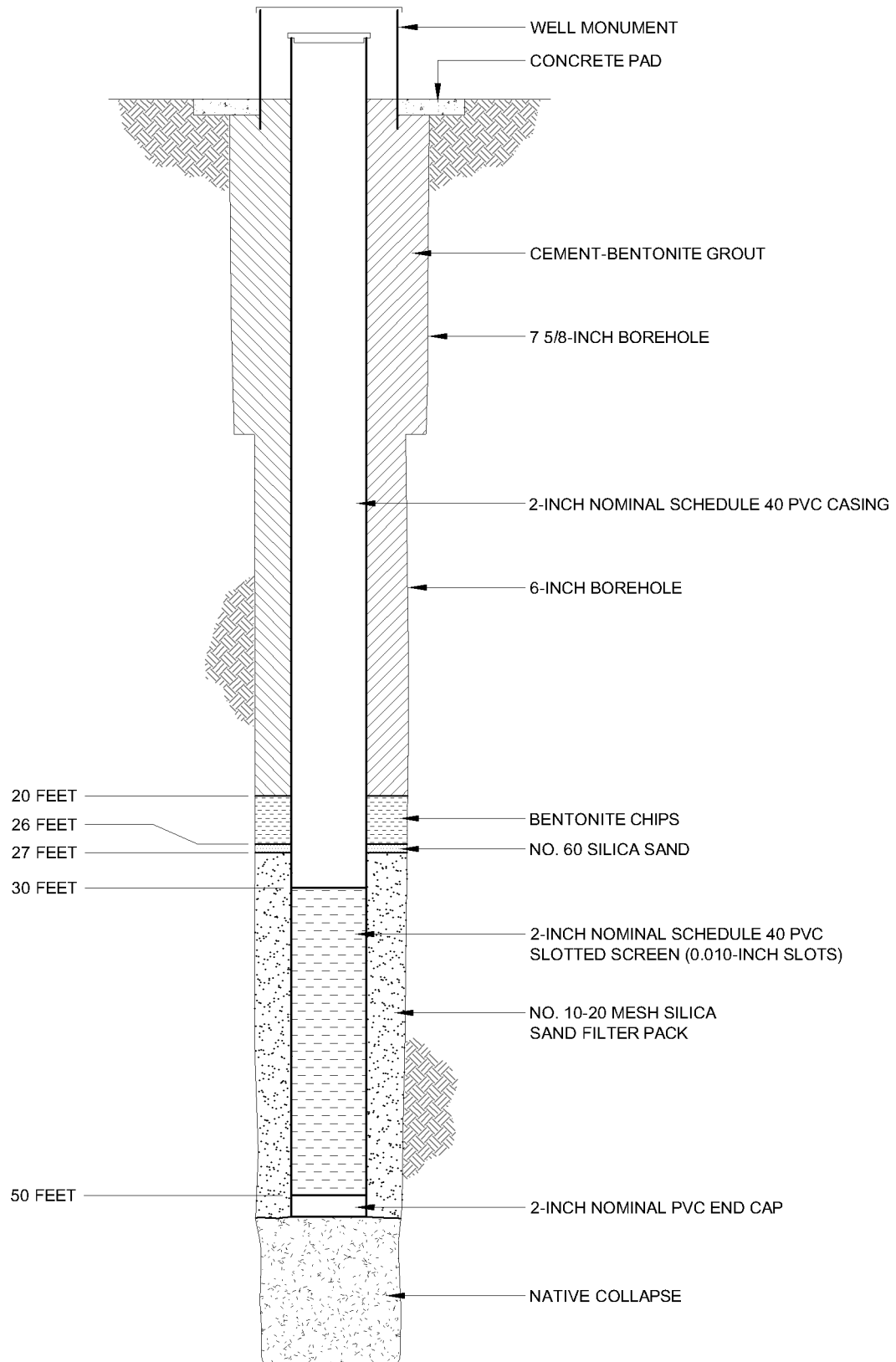
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-4S  
Construction Details**



NOT TO SCALE

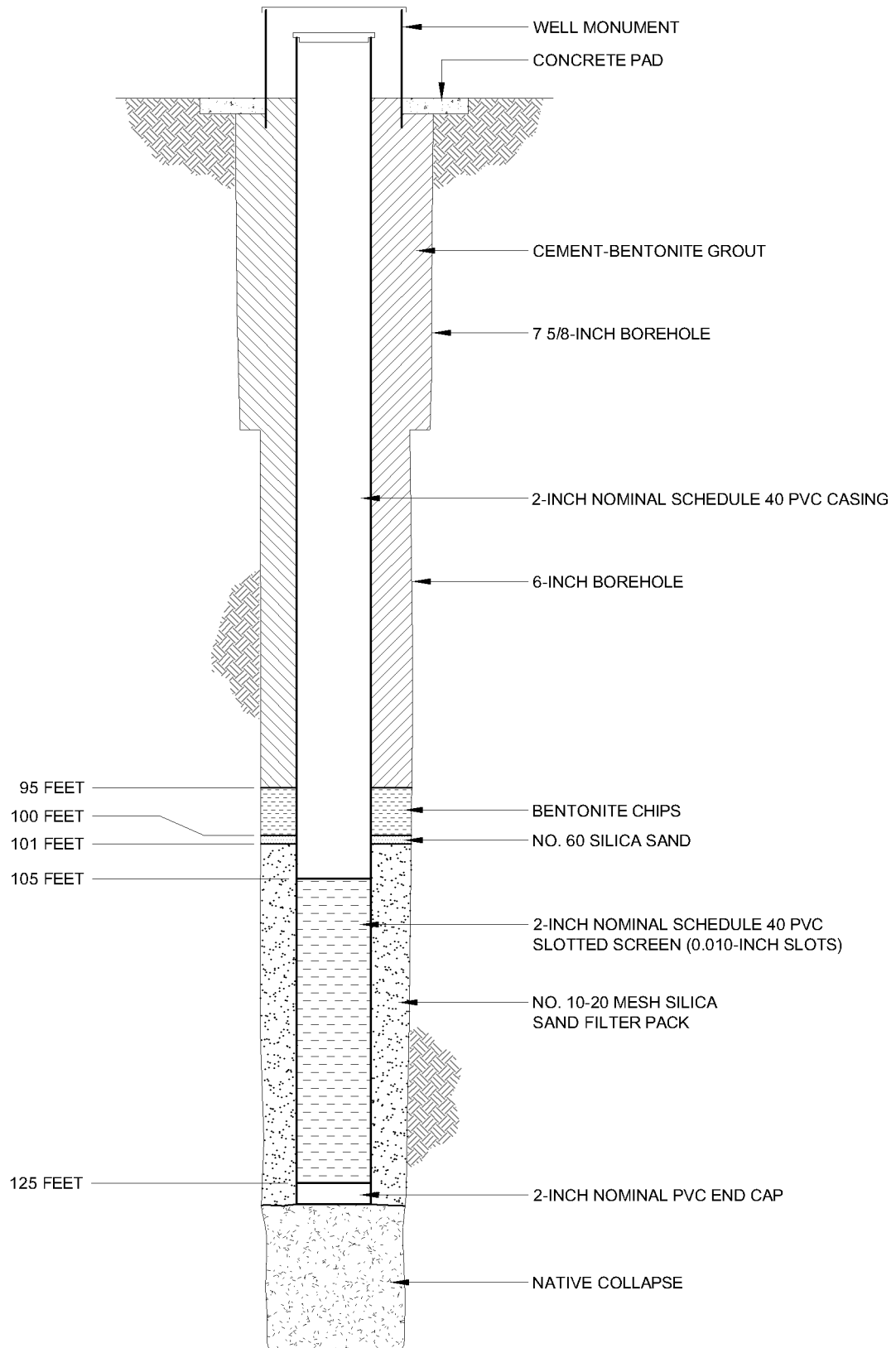
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-5RS  
Construction Details**



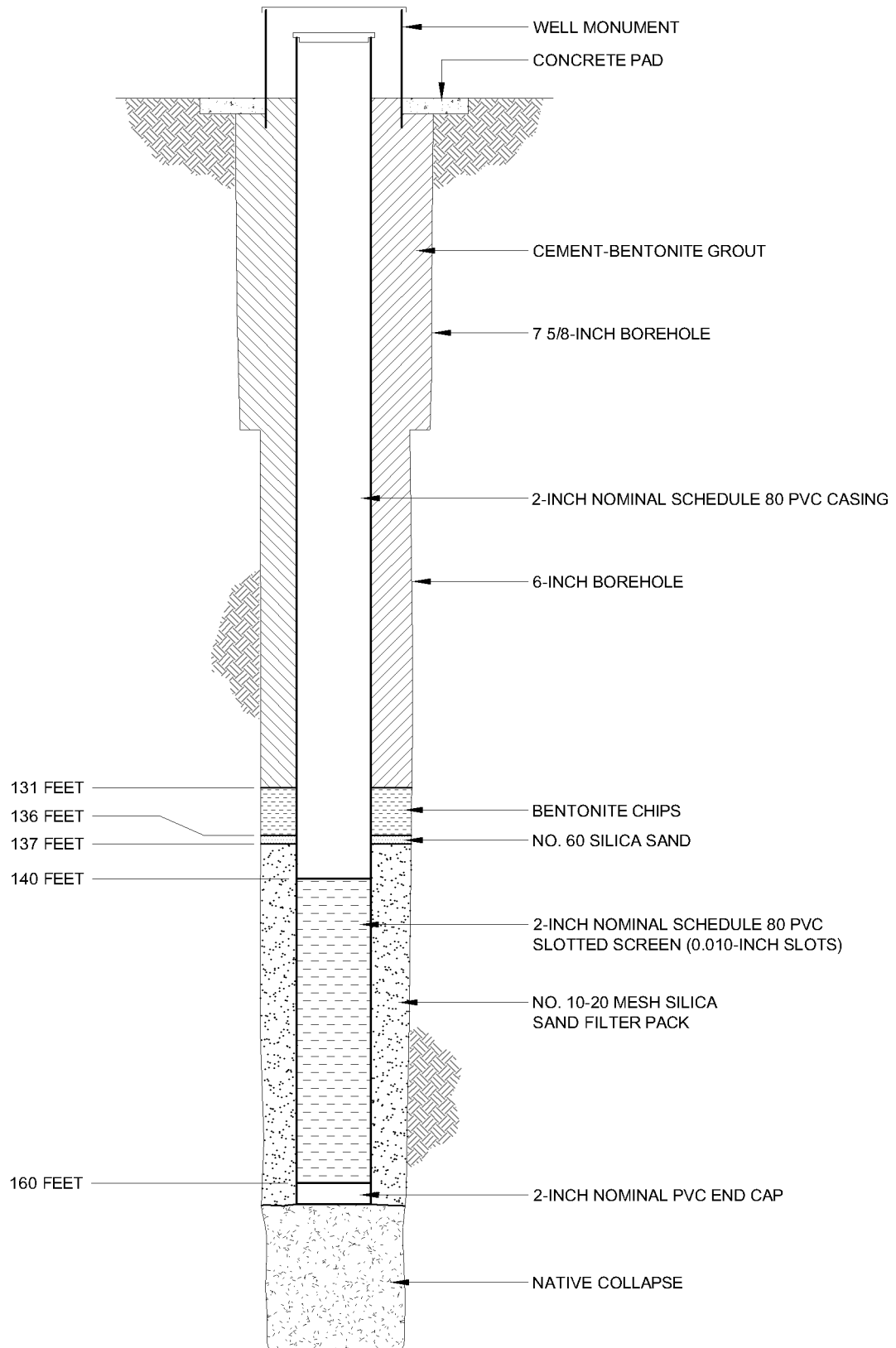
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-6S  
Construction Details**



NOT TO SCALE

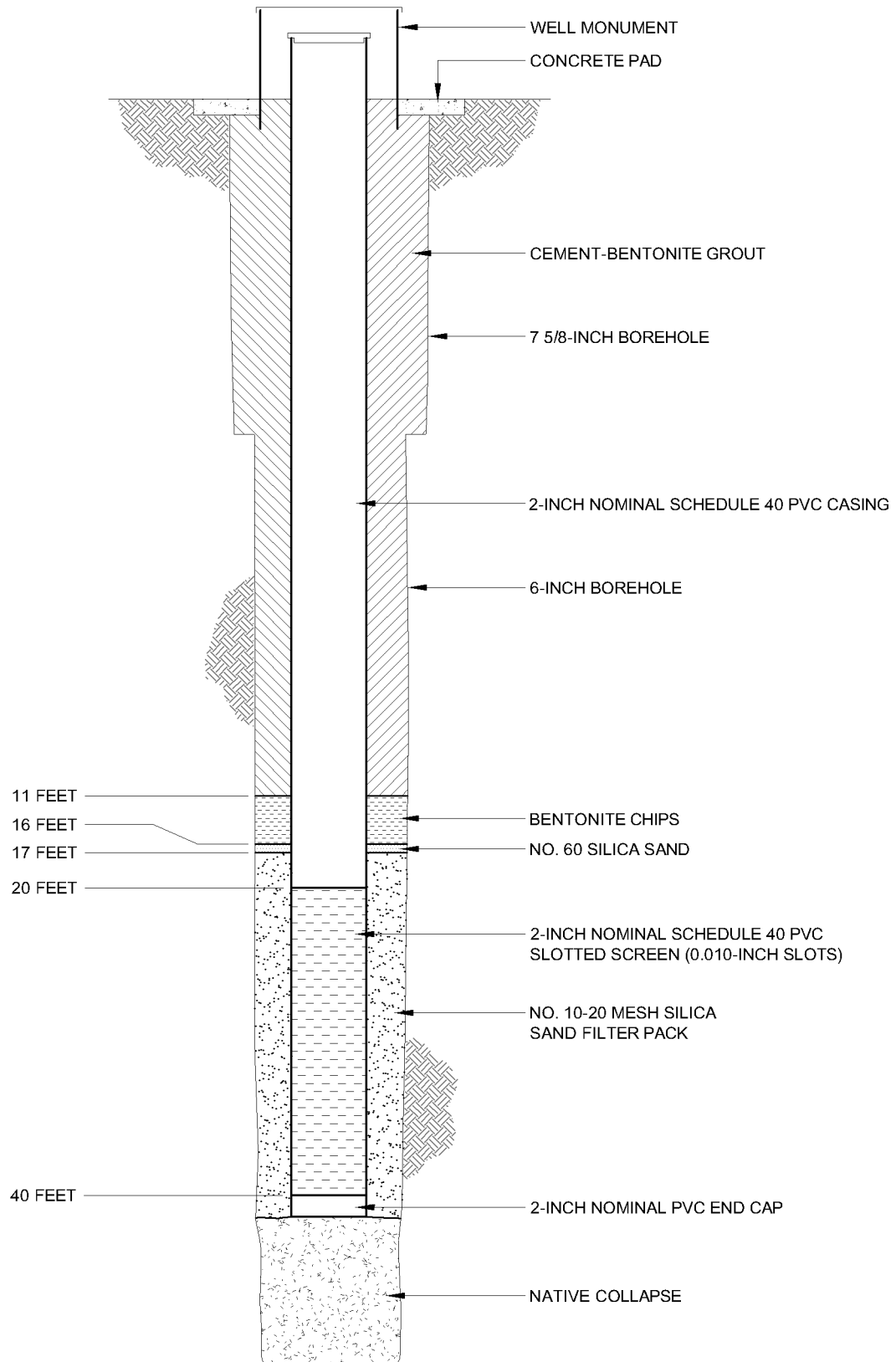
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-8S  
Construction Details**



NOT TO SCALE

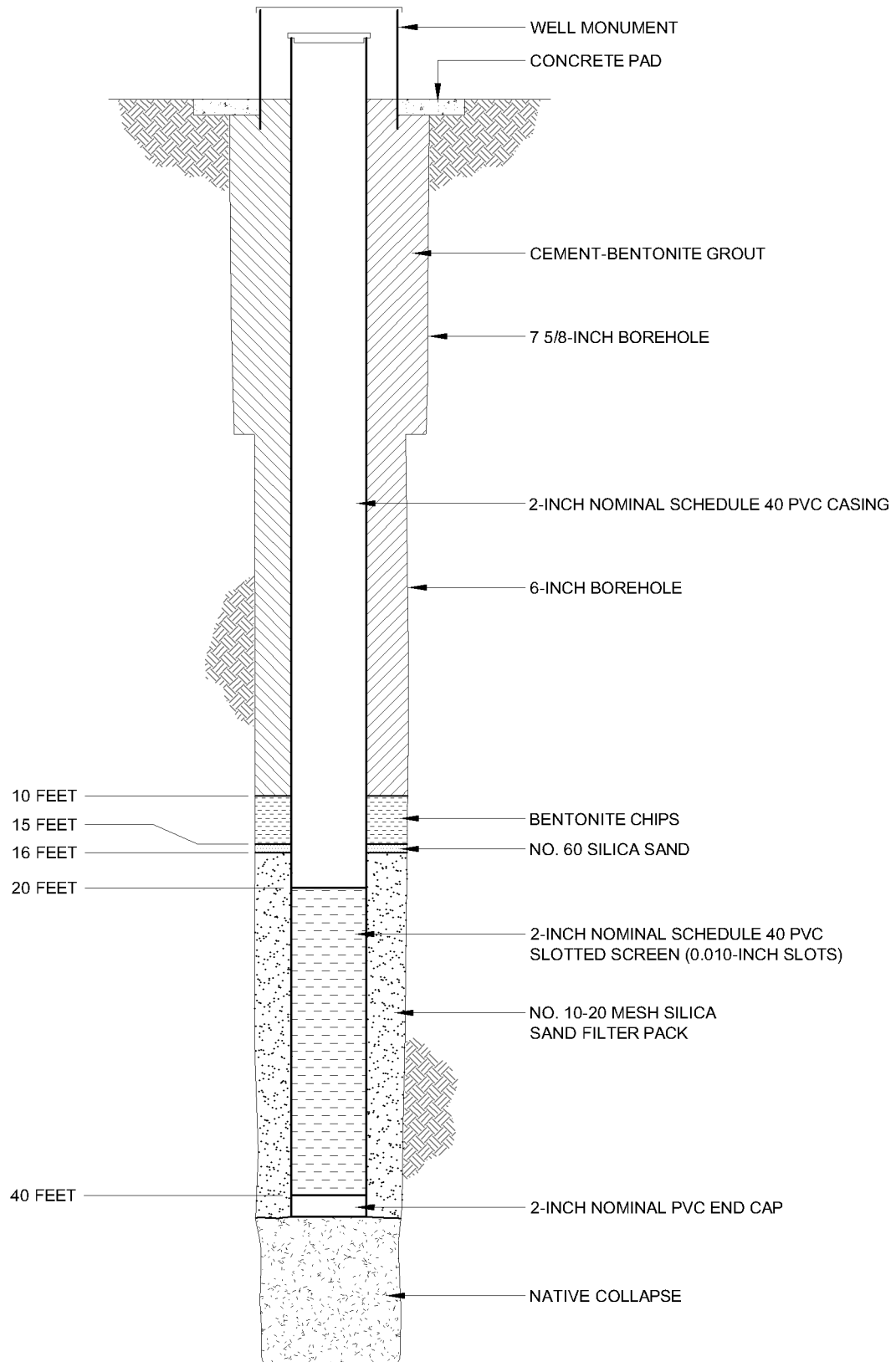
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-9S  
Construction Details**



NOT TO SCALE

**BROWN AND  
CALDWELL**

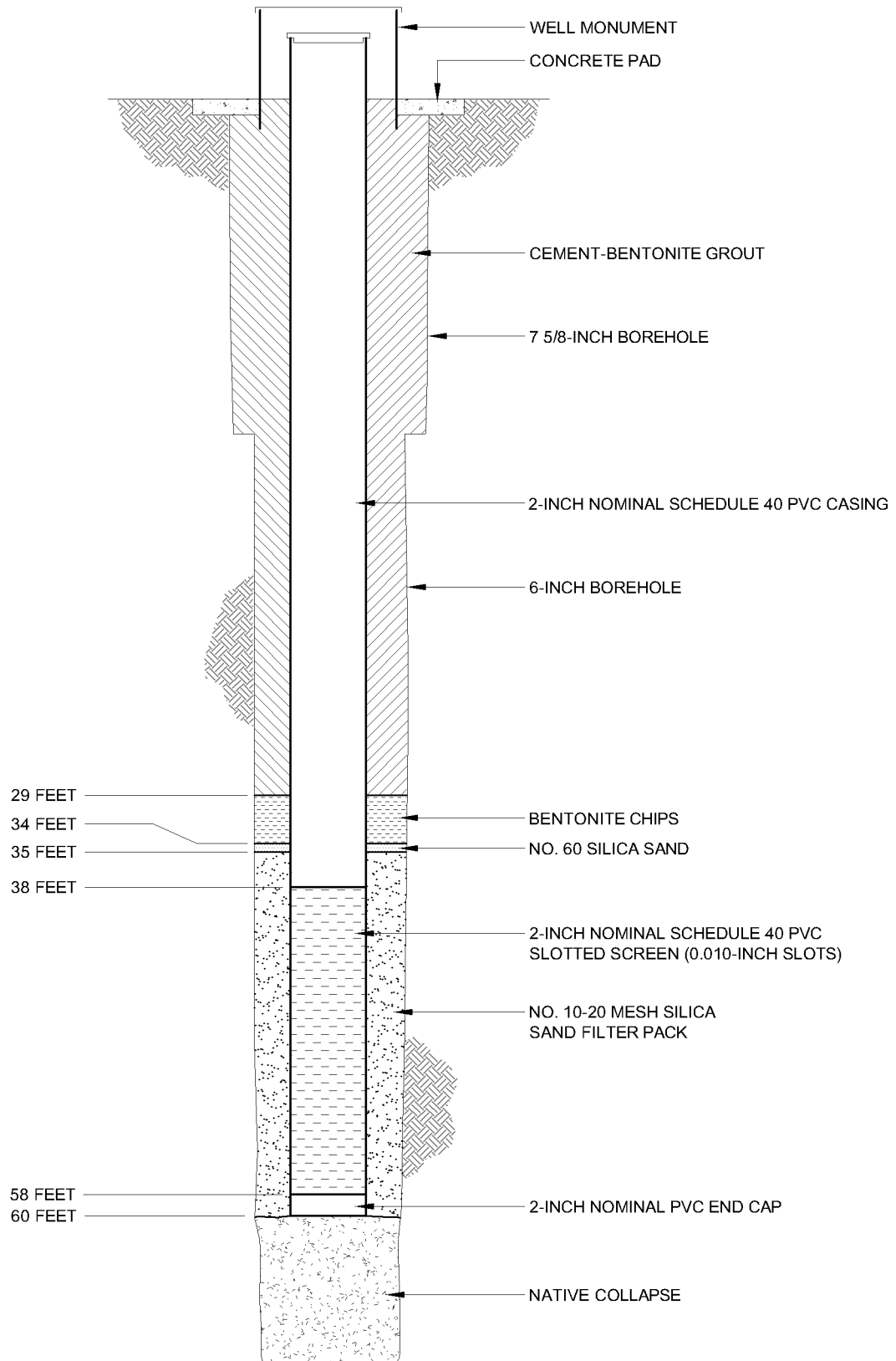
Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-10S  
Construction Details**





NOT TO SCALE

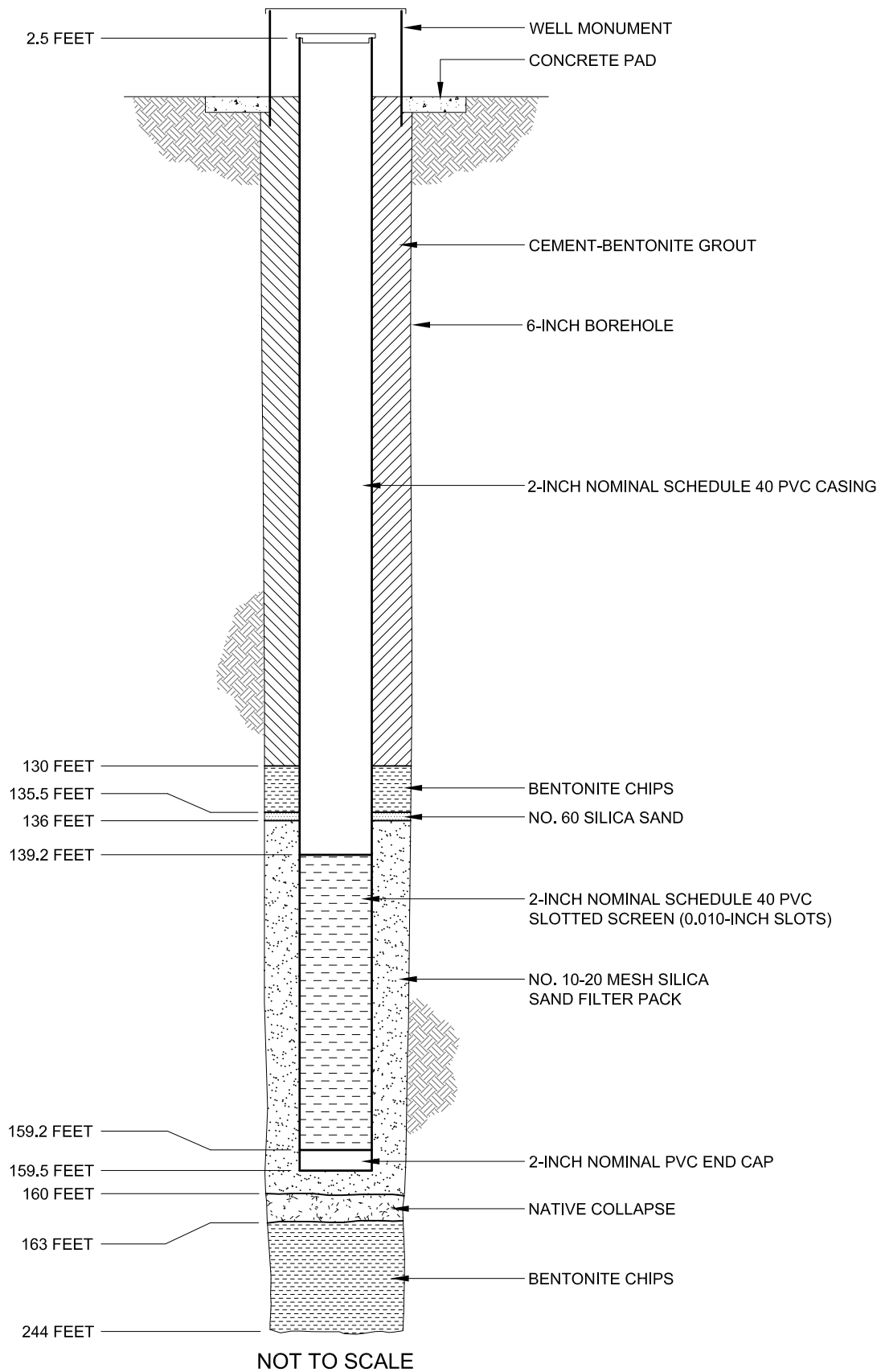
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-11S  
Construction Details**



DATE: April 2006

PROJECT NUMBER: 129684

**BROWN AND  
CALDWELL**  
Carson City, Nevada

Atlantic Richfield  
Company

**Figure 2-16**

**Well B/W-13 Construction Details**

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-13**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **1** of **13**

Boring Location: <b>South of Pit Lake, west of highway</b>		Elevation: <b>4503.4 feet amsl</b>		East: <b>326838.9</b> North: <b>1535222.9</b>	
Drilling Contractor: <b>WDC</b>		Driller: <b>M. Wilkerson</b>		Date Started: <b>7/7/05</b> Date Finished: <b>7/13/05</b>	
Drilling Equipment: <b>GEFCO SS-15K-HL, Roussy Sonic Head</b>		Total Depth: (feet) <b>244.0</b>		Water Depth: (feet) <b>126.5' / 124.20'</b>	
Sampling Method: <b>Core Barrel</b>		Borehole Diameter: <b>6"</b>		Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>139.2-159.2 ft., bottom at 159.5 ft.</b>			
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>		Filter Material: <b>#10-20 Silica Sand</b>	
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>			

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	<b>SILTY SAND with GRAVEL</b> (0-1.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~40% gravel to 40 mm, and ~15% silt and clay. The sand is angular to subrounded, the gravel angular to subangular. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					<p>Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.</p> <p>Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.</p> <p>Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.</p> <p>All depths are below land surface unless stated otherwise.</p> <p>WELL DESIGN for B/W-13: Screened Interval: 139.2-159.2 feet. Bottom of sump: 159.5 feet.</p> <p>Cement Grout: 0-130 feet. Bentonite Chips: 130-135.5 feet. Filter Pack: #60 Sand 135.5-136 feet, #10-20 Sand 136-160 feet. Native Collapse: 160-163 feet. Bentonite Chips: 163-244 feet.</p> <p>Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,505.86 feet, amsl. PVC Stick-up: 2.5 feet above land surface.</p>
	4500	SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (1.5-4 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 60 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown (7.5YR 4/3), and have a strong reaction to HCl.					
5		CL	<b>SANDY LEAN CLAY</b> (4-5.75 feet) Dry, very dense, no odor. Primarily silt and clay with ~35% fine sand and ~10% gravel to 30 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction HCl.					
	4495	ML	<b>SANDY SILT</b> (5.75-10 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~10% gravel to 20 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness and are light brownish gray (2.5Y 6/2).					
10		GM	<b>SILTY GRAVEL with SAND</b> (10-16 feet) Dry, very dense, no odor. Primarily gravel to 60 mm with ~30% coarse to medium sand and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
	4490							

Project Name: Yerington Groundwater InvestigationWell Number: B/W-13Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4485		SM	<b>SILTY SAND with GRAVEL</b> (16-17.25 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 30 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown (10YR 5/3), and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (17.25-19.25 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 50 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
20		SC	<b>CLAYEY SAND with GRAVEL</b> (19.25-20 feet) Dry, very dense, no odor.					
		SM	Primarily medium to fine sand with ~20% fine gravel to 15 mm, and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (20-21.5 feet) Dry, very dense, no odor.					
			Primarily medium to fine sand with ~30% gravel to 50 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and have a weak reaction to HCl.					
4480			<b>SILTY SAND with GRAVEL</b> (21.5-23.5 feet) Dry, very dense, no odor.					
		SW	Primarily medium to fine sand with ~20% gravel to 20 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and have a strong reaction to HCl.					
25			<b>WELL-GRADED SAND with GRAVEL</b> (23.5-25 feet) Dry, very dense, no odor.					
		SM	Primarily medium to fine sand with ~25% coarse sand, ~45% gravel to 25 mm, and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (25-26 feet) Dry, very dense, no odor.					
		GW-GM	Primarily medium to fine sand with ~30% gravel to 25 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are grayish brown, and have a strong reaction to HCl.					
4475		SW-SM	<b>SILTY SAND with GRAVEL</b> (26-26.5 feet) Dry, very dense, no odor.					
			Primarily sand with ~30% gravel to 30 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light grayish brown, and have a strong reaction to HCl.					
30			<b>WELL-GRADED GRAVEL with SILT and SAND</b> (26.5-27.5 feet) Dry, very dense, no odor.					
			Primarily gravel to 30 mm with ~30% coarse to medium sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
		SC	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (27.5-32 feet) Dry, very dense, no odor.					
4470			Primarily coarse to medium sand with, ~15% fine sand, ~45% gravel to 40 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
		SM	<b>CLAYEY SAND with GRAVEL</b> (32.-33.25 feet) Dry, very dense, no odor.					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-13**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **3** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
35		GW	Primarily sand with ~30% gravel to 20 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl. <b>SILTY SAND with GRAVEL</b> (33.25-35.5 feet) Dry, very dense, no odor.					
	4465	CL	Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 30 mm, and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are light brown, and have a strong reaction to HCl. <b>WELL-GRADED GRAVEL with SAND</b> (35.5-39 feet) Dry, medium dense, no odor.					
		CL	Primarily gravel to 75 mm with ~30% coarse to medium sand and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (39-39.25 feet) Dry, very dense, no odor.					
40		SW-SM	Primarily silt and clay with ~35% medium to fine sand and ~10% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction HCl.					
		SM	<b>SANDY LEAN CLAY</b> (39.25-40 feet) Dry, very dense, no odor.					
	4460	CL	Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to 40 mm. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines have medium plasticity and toughness, are gray (5Y 6/1), and have a strong reaction HCl. <b>WELL-GRADED SAND with SILT and GRAVEL</b> (40-41.25 feet) Dry, very dense, no odor.					
45		CL	Primarily coarse to medium sand with ~25% gravel to 60 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl. <b>SILTY SAND with GRAVEL</b> (41.25-44 feet) Dry, very dense, no odor.					
		SM	Primarily medium to fine sand with ~15% coarse sand, ~30% gravel to 20 mm, and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (44-47.25 feet) Dry, very dense, no odor.					
	4455	GW	Primarily silt and clay with ~45% medium to fine sand and ~5% gravel to 50 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are light brownish gray (2.5Y 6/2), and have a strong reaction HCl. <b>SILTY SAND with GRAVEL</b> (47.25-50 feet) Dry, very dense, no odor.					
50		GW	Primarily medium to fine sand with ~15% coarse sand, ~35% gravel to 50 mm, and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and have a strong reaction to HCl. <b>WELL-GRADED GRAVEL with SAND</b> (50-52.5 feet) Dry, very dense, no odor.					
		GM	Primarily gravel to 50 mm with ~20% medium to fine sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are light brown, and have a weak reaction to HCl. <b>SILTY GRAVEL with SAND</b> (52.5-56 feet) Dry, very dense, no odor.					
	4450		Primarily gravel to 25 mm with ~25% medium to fine sand and ~15% silt and clay. The sand and gravel are subangular					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-13Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
55			to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
	4445	GC	<b>CLAYEY GRAVEL with SAND</b> (56-59.5 feet) Dry, medium dense, no odor. Primarily gravel to 40 mm with ~20% medium to fine sand and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines have medium plasticity and toughness, are light brown, and have a weak reaction to HCl.					
60		GW-GM	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (59.5-60.75 feet) Dry, medium dense, no odor. Primarily gravel to 50 mm with ~25% medium to fine sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4440	SC	<b>CLAYEY SAND</b> (60.75-63 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND with GRAVEL</b> (63-65 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~30% gravel to 30 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brownish gray, and have a strong reaction to HCl.					
65		SC	<b>CLAYEY SAND</b> (65-70 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a weak reaction to HCl.					
	4435							
70		SM	<b>SILTY SAND with GRAVEL</b> (70-72.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 40 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
	4430	CL	<b>SANDY LEAN CLAY</b> (72.5-73 feet) Dry, very hard, no odor. Primarily silt and clay with ~50% medium to fine sand and trace fine gravel to 5 mm. The sand is subangular to					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-13**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **5** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
75		SW-SM	subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. <b><u>SILTY SAND with GRAVEL</u></b> (73-74 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 40 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl. <b><u>WELL-GRADED SAND with SILT</u></b> (74-77.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4425	GW-GM	<b><u>WELL-GRADED GRAVEL with SILT and SAND</u></b> (77.5-79 feet) Dry, very dense, no odor. Primarily gravel to 25 mm with ~20% medium to fine sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
80		SC	<b><u>CLAYEY SAND</u></b> (79-80 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and low toughness and are brown.					
	4420	SW-SM	<b><u>WELL-GRADED SAND with SILT and GRAVEL</u></b> (80-83.5 feet) Dry, medium dense, no odor. Primarily coarse to fine sand with ~30% gravel to 75 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
85		GW	<b><u>WELL-GRADED GRAVEL with SAND</u></b> (83.5-86 feet) Dry, very dense, no odor. Primarily gravel to 75 mm with ~30% coarse to fine sand and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4415	SM	<b><u>SILTY SAND with GRAVEL</u></b> (86-90 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 60 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
90		SM	<b><u>SILTY SAND with GRAVEL</u></b> (90-97 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 40 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. Gravel seam in the lower 6-inches of the interval.					
	4410							

Project Name: Yerington Groundwater InvestigationWell Number: B/W-13Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
95								
	4405	SM	<b>SILTY SAND with GRAVEL</b> (97-98.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~25% fine gravel to 15 mm, and ~40% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (98.5-99.5 feet) Moist to saturated, very dense, no odor.					
100		SM	Primarily medium to fine sand with trace fine gravel to 5 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (99.5-100 feet) Moist to saturated, very dense, no odor.					
		SC	Primarily medium to fine sand with ~25% gravel to 40 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4400	CL	<b>SILTY SAND with GRAVEL</b> (100-101.5 feet) Dry, very dense, no odor.					
			Primarily medium to fine sand with ~30% gravel to 50 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>CLAYEY SAND with GRAVEL</b> (101.5-102.5 feet) Dry, very dense, no odor.					
105			Primarily medium to fine sand with ~35% gravel to 70 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown, and have a strong reaction to HCl.					
			<b>SANDY LEAN CLAY</b> (102.5-110 feet) Dry, very hard, no odor.					
			Primarily silt and clay with ~35% medium to fine sand and ~5% gravel to 20 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.					
	4395							
110		SM	<b>SILTY SAND</b> (110-116 feet) Dry, very dense, no odor.					
			Primarily medium to fine sand with trace fine gravel to 15 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					



Project Name: Yerington Groundwater InvestigationWell Number: B/W-13Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 7 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115	4390							
		SM	<b>SILTY SAND</b> (116-117 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to 5 mm and ~35% silt and clay. The sand is subangular to rounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
	4385	SW-SM	<b>WELL-GRADED SAND with SILT</b> (117-120 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to 10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
120		GM-SC	<b>SILTY GRAVEL with SAND</b> (120-120.2 feet) Dry to moist, medium dense, no odor. Primarily gravel to 30 mm with ~30% medium to fine sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4380	SW-SM	<b>CLAYEY SAND</b> (120.2-121.2 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 10 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are light brownish gray, and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (121.2-125 feet) Dry from 121.2-123, moist to saturated from 123-125, dense, no odor. Primarily medium to fine sand to ~1 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
125		SW-SM	<b>WELL-GRADED SAND with SILT</b> (125-126.75 feet) Moist to saturated, medium dense to very dense, no odor. Primarily medium to fine sand with trace gravel and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP	<b>POORLY-GRADED SAND</b> (126.75-127.5 feet) Saturated, medium dense, no odor.					
	4375	SW-SM	Primarily medium to fine sand with trace fine gravel to 10 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (127.5-129 feet) Saturated, medium dense, no odor.					
130		CL	Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>SANDY LEAN CLAY</b> (129-129.75 feet) Dry, no odor.					
		SM	Primarily silt and clay with ~50% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark gray (10YR 4/1), and have a weak reaction to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (129.75-130.75 feet) Saturated, medium dense, no odor.					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-13**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **8** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
135	4370	GW-GM	Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. <b>SILTY SAND with GRAVEL</b> (100-101.5 feet) Moist, very dense, no odor.					
		CL	Primarily medium to fine sand with ~45% gravel to 70 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl. <b>WELL-GRADED GRAVEL with SILT and SAND</b> (133.5-136 feet) Moist, very dense, no odor.					
		GW-GM	Primarily gravel to 70 mm with ~20% medium to fine sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a weak to no reaction to HCl. <b>SANDY LEAN CLAY</b> (136-137 feet) Dry, very hard, no odor.					
140	4365	SM	Primarily silt and clay with ~35% medium to fine sand and ~10% gravel to 20 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are gray (10YR 5/1), and have a weak reaction to HCl. <b>WELL-GRADED GRAVEL with SILT and SAND</b> (137-140 feet) Saturated, medium dense, no odor.					
		GW	Primarily gravel to 30 mm with ~30% sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. <b>SILTY SAND with GRAVEL</b> (140-141.25 feet) Saturated, medium dense, no odor.					
		SM	Primarily medium to fine sand with ~40% gravel to 30 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl. <b>WELL-GRADED GRAVEL with SAND</b> (141.25-143.25 feet) Saturated, medium dense, no odor.					
145	4360	SW	Primarily fine gravel to 15 mm with ~20% coarse to medium sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are gray, and do not react to HCl. <b>SILTY SAND with GRAVEL</b> (143.25-144 feet) Saturated, medium dense, no odor.					
			Predominately medium to fine sand with ~15% gravel to 75 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. <b>WELL-GRADED SAND</b> (144-153 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand with trace gravel to 20 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
150	4355							

B/W-13 @ 140 - 145 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-13Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 9 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155	4350	SM	<b>SILTY SAND with GRAVEL</b> (153-154.75 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 25 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (154.75-155.5 feet) Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (155.5-159 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~20% gravel to 20 mm, and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brownish gray (2.5Y 2/6), and have a weak to no reaction to HCl.					
160	4345	SM	<b>SILTY SAND with GRAVEL</b> (159-160 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 20 mm, and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		GW	<b>WELL-GRADED GRAVEL with SAND</b> (160-161.5 feet) Saturated, medium dense, no odor. Primarily gravel to 30 mm with ~45% coarse to medium sand and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (161.5-162 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% sand and trace fine gravel to 8 mm. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are strong brown (7.5YR 4/6), and do not react to HCl.					
165	4340	SM	<b>WELL-GRADED SAND with SILT</b> (162-162.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to 8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>INTERBEDDED SILTY SAND with GRAVEL and SANDY LEAN CLAY</b> (162.5-164 feet) <b>SILTY SAND with GRAVEL</b> Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 20 mm, and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SANDY LEAN CLAY</b> Moist, hard, no odor. Primarily silt and clay with ~35% medium to fine sand and trace coarse sand to 2.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
170	4335	SM	<b>SILTY SAND with GRAVEL</b> (164-170 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 40 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>INTERBEDDED SILTY SAND with GRAVEL and</b>					

B/W-13 @ 159 - 164 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-13Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 10 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
175	4330		<p><b>SANDY LEAN CLAY</b> (170-171.5 feet)  <b>SILTY SAND with GRAVEL</b>            Moist, medium dense, no odor.            Primarily medium to fine sand with ~15% coarse sand, ~20% gravel to 50 mm, and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.</p> <p><b>SANDY LEAN CLAY</b>            Moist, very hard, no odor.            Primarily silt and clay with ~35% medium to fine sand and ~5% fine gravel to 12 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.</p> <p><b>SANDY LEAN CLAY</b> (171.5-180 feet)            Moist, very hard, no odor.            Primarily silt and clay with ~45% sand and ~5% fine gravel to 12 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are mostly brown (10YR 4/3) with some very dark gray sediments (10YR 3/1), and do not react to HCl.</p>					
180	4325							
180	4320	CL	<p><b>SANDY LEAN CLAY with GRAVEL</b> (180-184 feet)            Moist, very hard, no odor.            Primarily silt and clay with ~30% sand and ~15% gravel to 75 mm. The sand is angular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak to no reaction to HCl.</p>					
185	4315		NO RECOVERY					
190								
		GW	<p><b>WELL-GRADED GRAVEL with SAND</b> (191-192.5 feet)            Saturated, medium dense, no odor.</p>					

B/W-13 @ 185 - 190 Ft.

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-13**Soil Boring ☐Monitoring Well ☒

Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4310		CL	Primarily gravel to 30 mm with ~25% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and do not react to HCl. <b>SANDY LEAN CLAY</b> (192.5-193.5 feet) Moist, very hard, no odor.					
195		SM	Primarily silt and clay with ~30% coarse to fine sand and trace fine gravel to 10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl. <b>SILTY SAND with GRAVEL</b> (193.5-200 feet) Moist, very dense, no odor.					
4305			Primarily medium to fine sand with ~15% gravel to 20 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
200		SC	<b>CLAYEY SAND with GRAVEL</b> (200-203 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~35% gravel to 30 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brownish gray, and have a weak to no reaction to HCl.					
4300		SC	<b>CLAYEY SAND with GRAVEL</b> (203-206 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% fine gravel to 15 mm and ~45% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a strong reaction to HCl.					
205		CL	<b>SANDY LEAN CLAY</b> (206-210 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% fine gravel to 12 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a strong reaction to HCl.					
4295								
210		CH	<b>SANDY FAT CLAY</b> (210-212.75 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~20% medium to fine sand and ~5% fine gravel to 10 mm. The sand and gravel are					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-13**Soil Boring ☐Monitoring Well ☒

Project Number:

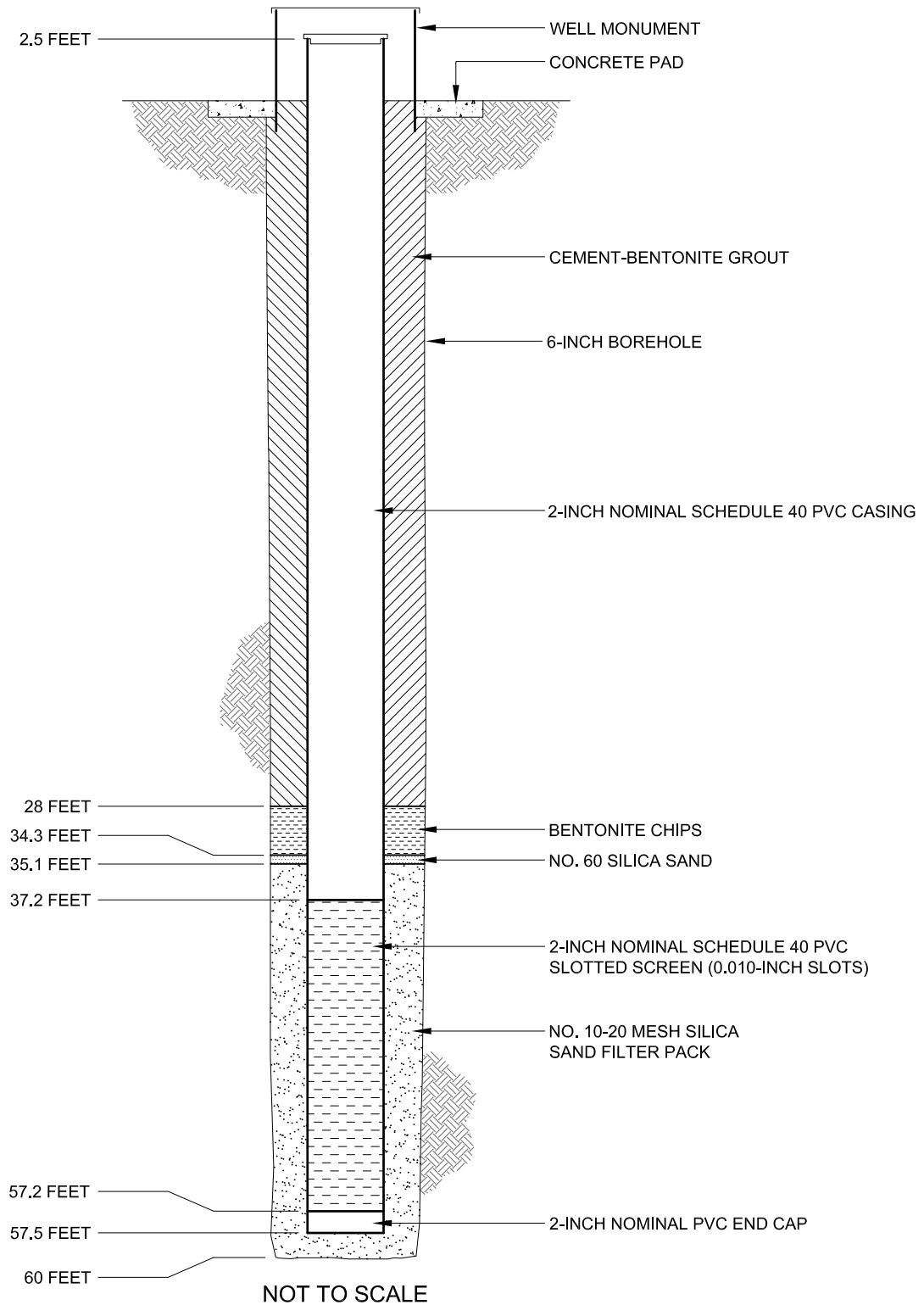
**121243.021**Sheet **12** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			subangular to subrounded. The fines have high plasticity and toughness, are dark yellowish brown (10YR 4/4) to yellowish red (5YR 4/6), and have a strong reaction to HCl.					
	4290	CH	<b>SANDY FAT CLAY</b> (212.75-213.75 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have high plasticity and medium toughness, are very dark gray (10YR 3/1), and do not react to HCl.					
215		CH	<b>FAT CLAY with SAND</b> (213.75-214.75 feet) Dry, very hard, no odor. Primarily silt and clay with ~20% medium to fine sand and trace coarse sand to 2 mm. The sand is subangular to subrounded. The fines have high plasticity and toughness, are mottled dark yellowish brown (10YR 4/6) to grayish brown (10YR 5/2) to pinkish white (5YR 8/2), and do not react to HCl.					
	4285		<b>WEATHERED GRANITE</b> (219.75-219.75 feet) Dry, very hard, no odor. Fractured and weathered granite with ~55% secondary silt and clay. The fines have high plasticity, medium toughness, are light brownish gray (10Y/R 6/2), and do not react to HCl.					
220		CH	<b>FAT CLAY</b> (219.75-220 feet) Dry, very hard, no odor. Primarily silt and clay with ~15% sand and trace fine gravel to 12 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have high plasticity and medium toughness, are light brownish gray (2.5Y 6/2), and do not react to HCl.					
	4280		<b>WEATHERED GRANITE</b> (220-226 feet) Dry, very hard, no odor. Fractured and weathered granite with ~55% secondary silt and clay. The fines have high plasticity, medium toughness, are light brownish gray (10YR 6/2), and do not react to HCl.					
225			<b>WEATHERED TUFF</b> (226-228.5 feet) Dry, very hard, no odor. Fractured weathered volcanic tuff with ~20% secondary silt and clay, includes some angular quartz clasts to 3 mm. The fines have medium plasticity and toughness, are reddish brown to weak red with some pink, and do not react to HCl.					
	4275		<b>WEATHERED TUFF</b> (228.5-229 feet) Dry, very hard, no odor. Fractured weathered volcanic tuff with ~30% secondary silt and clay, includes some angular quartz clasts to 3 mm. The fines have are nonplastic, are yellowish red (5YR 5/6), and do not react to HCl.					
230			<b>WEATHERED TUFF</b> (229-243 feet) Dry, very hard, no odor.					

© 228 - 233 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-13Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 13 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4270			Fractured weathered volcanic tuff with ~10% secondary silt and clay, includes some elemental sulfur and angular quartz clasts to 3 mm. The fines have are nonplastic, are pinkish white (5YR 8/2) to light reddish brown (5YR 6/3), and do not react to HCl.					
235								
4265								
240								
4260		CH	<b>WEATHERED ASH / FAT CLAY</b> (243-243.5 feet) Dry, very hard, no odor.					
		T	Entirely silt and clay with high plasticity, medium toughness, are brown (10YR 5/3), and do not react to HCl.					
			<b>TUFF</b> (229-243 feet) Dry, very hard, no odor. Crystalline volcanic tuff, pale red (2.5YR 7/2) and white (2.5YR 8/1), with some angular quartz clasts to ~3 mm. Does not react to HCl.					



DATE: April 2006

PROJECT NUMBER: 129684

**BROWN AND  
CALDWELL**  
Carson City, Nevada

Atlantic Richfield  
Company

**Figure 2-17**

**Well B/W-14 Construction Details**



Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-14**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **1** of **16**

Boring Location: <b>Southeast of Pit Lake, east of highway near river</b>		Elevation: <b>4394.1 feet amsl</b>		East: <b>329551.6</b> North: <b>1538561.1</b>	
Drilling Contractor: <b>WDC</b>		Driller: <b>M. Wilkerson</b>		Date Started: <b>6/15/05</b> Date Finished: <b>7/6/05</b>	
Drilling Equipment: <b>GEFCO SS-15K-HL, Roussy Sonic Head</b>		Total Depth: (feet) <b>200.0</b>		Water Depth: (feet) <b>15' / 10.75'</b>	
Sampling Method: <b>Core Barrel</b>		Borehole Diameter: <b>6"</b>		Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>37.2-57.2 ft., bottom at 57.5 ft.</b>			
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>		Filter Material: <b>#10-20 Silica Sand</b>	
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>			

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	<b>SILTY SAND</b> (0-1.25 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (1.25-2 feet) Dry, loose, no odor. Primarily coarse to medium sand with ~20% fine gravel to 12 mm and ~5% silt and clay. The gravel and sand are subangular to subrounded.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		CL	<b>LEAN CLAY</b> (2-8.5 feet) Moist, soft, no odor. Primarily silt and clay with trace sand to 5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark brown (10YR 3/3), and have a slight reaction to HCl.					Well B/W-14 was installed in a second borehole drilled to 60 feet near the initial borehole location. The initial borehole was abandoned with cement-bentonite grout tremied from total depth to land surface. All depths are below land surface unless stated otherwise.
4390								WELL DESIGN for B/W-14: Screened Interval: 37.2-57.2 feet. Bottom of sump: 57.5 feet.
5								Cement Grout: 0-28 feet. Bentonite Chips: 28-34.3 feet. Filter Pack: #60 Sand 34.3-35.1 feet, #10-20 Sand 35.1-60 feet.
		SP	<b>POORLY GRADED SAND</b> (8.5-9.25 feet) Moist, loose, no odor. Primarily medium to fine sand to 2 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light olive brown (2.5Y 5/3), and do not react to HCl.					Depth to Water Measuring Point is Top of PVC Casing.
4385		CL	<b>LEAN CLAY with SAND</b> (9.25-10 feet) Moist, soft, no odor.					Top of PVC Elevation: 4,396.56 feet, amsl. PVC Stick-up: 2.5 feet above land surface.

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-14**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **2** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
15	4380	SM	Primarily silt and clay with trace sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and do not react to HCl.					
			<b>SILTY SAND</b> (10-11 feet)					
		SM	Moist, loose, no odor.					
			Primarily fine sand with trace medium sand to 1 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are dark gray (2.5Y 4/1), and do not react to HCl.					
			<b>SILTY SAND</b> (11-12.5 feet)					
			Moist, medium dense, no odor.					
			Primarily fine sand with trace medium sand to 1 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are dark gray (2.5Y 4/1), and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (12.5-14.25 feet)					
			Saturated, loose, no odor.					
			Primarily medium to fine sand with trace fine gravel to 5 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are gray (2.5Y 5/1), and do not react to HCl.					
20	4375	CL	<b>SANDY LEAN CLAY</b> (14.25-15 feet)					
			Moist, soft, no odor.					
			Primarily silt and clay with ~30% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are very dark gray (5Y 3/1), and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (15-17 feet)					
			Saturated, loose, no odor.					
			Primarily medium sand with ~15% coarse sand, ~5% gravel to 20 mm, and ~5% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are gray (2.5Y 5/1), and do not react to HCl.					
		CL	<b>LEAN CLAY</b> (17-18.5 feet)					
			Moist, firm, no odor.					
			Primarily silt and clay with ~5% fine sand to 0.5 mm. The fines have medium plasticity and toughness and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (18.5-19 feet)					
20	4375		Saturated, loose, no odor.					
		SW	Primarily medium to fine sand with trace fine gravel to 10 mm, and trace silt and clay. The sand is angular to subrounded, the gravel is subrounded. The fines are nonplastic, are gray, and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (18.5-19 feet)					
			Saturated, loose, no odor.					
			Primarily medium to fine sand with trace fine gravel to 7 mm, and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are gray, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (20.5-21.5 feet)					
			Saturated, loose, no odor.					
			Primarily medium sand with ~20% coarse sand, ~10% gravel to 15 mm, and trace silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are gray, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (21.5-23 feet)					
			Saturated, loose, no odor.					
20	4375		Primarily coarse to medium sand with ~40% gravel to 75 mm and trace silt and clay. The sand and gravel are angular to subrounded, some gravel is elongated. The fines are nonplastic, are gray, and do not react to HCl.					

B/W-14 @ 12 - 17 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 3 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25	4370	SW	<b>WELL-GRADED SAND</b> (23-35 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% coarse sand, ~5% gravel to 20 mm, and trace silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are gray, and do not react to HCl.					
30	4365							
35	4360	SW	<b>WELL-GRADED SAND with GRAVEL</b> (35-36 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~25% gravel to 30 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to rounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					

B/W-14 @ 29 - 34 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
40	4355	SW-SM	<b>WELL-GRADED SAND</b> (36-37.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% fine gravel to 10 mm and ~10% silt and clay. The sand is angular to subangular, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (37.25-38 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (38-40.75 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% gravel to 30 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND</b> (40.75-41.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~5% fine gravel to 5 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
45	4350	SW	<b>WELL-GRADED SAND with GRAVEL</b> (41.25-42.25 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (42.25-43 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~30% fine sand, ~5% fine gravel to 30 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with GRAVEL</b> (43-43.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% fine sand, ~40% fine gravel to 15 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		GW	<b>WELL-GRADED SAND with GRAVEL</b> (43.25-44 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~40% fine gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
46	4345	SW-SM	<b>WELL-GRADED SAND</b> (44-45.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% fine gravel to 30 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED GRAVEL with SAND</b> (45.5-46 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~25% coarse to medium sand and trace silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>WELL-GRADED SAND</b> (46-48 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% fine gravel to 10					
		SW						

B/W-14 @ 46 - 51 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 5 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50		SM	mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl. <b>SILTY SAND</b> (48-48.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 3 mm and ~15% silt and clay. The sand is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl. <b>WELL-GRADED SAND with GRAVEL</b> (48.75-49 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% fine sand, ~35% fine gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl. <b>WELL-GRADED SAND</b> (49-54 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4340		GW	<b>WELL-GRADED GRAVEL with SAND</b> (54-54.5 feet) Saturated, loose, no odor.					
55		SW	Primarily gravel to 45 mm with ~20% coarse to medium sand and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl. <b>WELL-GRADED SAND with GRAVEL</b> (54.5-58 feet) Saturated, loose, no odor. Primarily coarse to medium sand ~20% fine gravel to 20 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP	<b>POORLY GRADED SAND</b> (58-59 feet) Saturated, loose, no odor. Completely medium to fine sand to 1.5 mm. The sand is angular to subangular.					
4335		SW	<b>WELL-GRADED SAND</b> (59-60 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~5% fine gravel to 20 mm and trace silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
60		GW	<b>WELL-GRADED GRAVEL with SAND</b> (60-61.5 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~40% coarse to medium sand and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW-GM	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (60-61.5 feet) Saturated, loose, no odor. Primarily gravel to 50 mm with ~40% medium to fine sand					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (63-64 feet) Saturated, loose, no odor. Primarily medium sand with ~5% coarse sand to 2.5 mm and ~10% silt and clay. The sand is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
4330		CL	<b>SANDY LEAN CLAY</b> (64-64.25 feet) Moist, hard, no odor.					
		SP-SM	Primarily silt and clay with ~30% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
65		CL	<b>POORLY GRADED SAND with SILT</b> (64.25-64.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to 0.5 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>LEAN CLAY with SAND</b> (64.75-68.5 feet) Moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3) with some black organic staining, and do not react to HCl.					
		ML	<b>SANDY SILT</b> (68.5-70 feet) Saturated, soft, no odor. Primarily silt and clay with ~40% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
4325								
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (70-70.75 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~35% gravel to 30 mm and ~10% silt and clay. The sand is subangular to rounded, the gravel is subrounded to rounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		GW						
		CL	<b>WELL-GRADED GRAVEL with SAND</b> (70.75-71 feet) Saturated, loose, no odor.					
		SW	Primarily gravel to 50 mm with ~25% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (71-71.25 feet) Moist, stiff, no odor.					
		GW	Primarily silt and clay with ~40% medium to fine sand to 0.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/2), and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (71.25-72.5 feet) Saturated, loose, no odor.					
		CL	Primarily coarse to medium sand with ~5% gravel to 30 mm and ~5% silt and clay. The sand is angular to rounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4320								
		GM	<b>WELL-GRADED GRAVEL</b> (72-73.5 feet) Saturated, loose, no odor.					
			Primarily gravel to 30 mm with ~20% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to rounded. The fines are nonplastic, are brown, and do not					
75		ML						
		SC						

B/W-14 @ 70 - 75 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 7 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (73.5-74.5 feet) Saturated, soft, no odor. Primarily silt and clay with ~30% coarse to medium sand and trace gravel to 15 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SW	<b>SILTY GRAVEL</b> (74.5-75 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~10% coarse to fine sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are brown and do not react to HCl.					
	4315		<b>SANDY SILT</b> (75-75.1 feet) Saturated, medium dense, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is subrounded. The fines have low plasticity and toughness, are light olive brown (2.5Y 5/3), and do not react to HCl.					
			<b>CLAYEY SAND</b> (75.1-76 feet) Saturated, medium dense, no odor. Primarily medium fine sand to 0.5 mm and ~35% silt and clay. The sand is subangular to rounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
80		GC	<b>SANDY LEAN CLAY</b> (76-76.75 feet) Moist, hard, no odor. Primarily silt and clay with ~40% fine sand to 0.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/4), and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (76.75-80 feet) Saturated, loose, no odor. Primarily medium sand with ~5% gravel to 10 mm. The sand is subangular to subrounded, the gravel is subangular to rounded.					
		SW	From 79-79.2 feet 30% gravel to 25mm and 70% coarse to medium sand.					
			<b>CLAYEY GRAVEL</b> (80-82 feet) Saturated, loose, no odor. Primarily gravel to 30 mm with ~25% coarse to medium sand and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
	4310		<b>WELL-GRADED SAND with GRAVEL</b> (82-85 feet) Moist, loose, no odor. Primarily coarse to medium sand with ~15% gravel to 20 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
85		SW	<b>WELL-GRADED SAND</b> (85-89 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% gravel to 25 mm. The sand is angular to subrounded, the gravel is subrounded to rounded.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 8 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4305		SW	<b>WELL-GRADED SAND with GRAVEL</b> (89-90 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~30% fine gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to rounded. The fines are nonplastic, are brown, and do not react to HCl. Thin clay seams at ~89.25 and 89.5 feet.					
90		SW	<b>WELL-GRADED SAND with GRAVEL</b> (90-91.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm. The sand and gravel are subangular to subrounded					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (91.25-94 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~30% gravel to 25 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4300		SW	<b>WELL-GRADED SAND with GRAVEL</b> (94-97.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~20% gravel to 30 mm and ~5% silt and clay. The sand is angular to rounded, the gravel is angular to subrounded. The fines are nonplastic, are dark brown, and do not react to HCl.					
95		SW	<b>WELL-GRADED SAND with GRAVEL</b> (97.5-98.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~40% fine gravel to 15 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are dark gray, and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (98.5-100 feet) Moist, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 25 mm and ~40% silt and clay. The sand and gravel are angular to subrounded. The fines have low plasticity and toughness, are dark gray, and do not react to HCl.					
4295		GW	<b>WELL-GRADED GRAVEL with SAND</b> (100-101 feet) Saturated, loose, no odor. Primarily gravel to 60 mm with ~25% coarse to medium sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
100		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (101-105 feet)					

B/W-14 @ 90 - 95 Ft.



Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-14**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **9** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			Saturated, loose, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
4290								
105		SW	<b>WELL-GRADED SAND</b> (105-106.75 feet) Saturated, loose, no odor. Primarily medium sand with ~5% gravel to 40 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW	<b>WELL-GRADED GRAVEL with SAND</b> (106.75-107.5 feet) Saturated, loose, no odor. Primarily gravel to 35 mm with ~25% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW						
		GW	<b>WELL-GRADED SAND with GRAVEL</b> (107.5-108 feet) Saturated, loose, no odor.					
4285		SW	Primarily coarse to medium sand with ~15% gravel to 25 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>WELL-GRADED GRAVEL with SAND</b> (108-108.5 feet) Saturated, loose, no odor.					
110		SW	Primarily gravel to 70 mm with ~35% coarse to medium sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (108.5-109.5 feet) Saturated, loose, no odor.					
		GW	Primarily coarse to medium sand with ~10% fine gravel to 10 mm and trace silt and clay. The sand is angular to rounded, the gravel is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (109.5-111 feet) Saturated, loose, no odor.					
		GW	Primarily medium sand with ~5% fine gravel to 15 mm and trace silt and clay. The sand is angular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>WELL-GRADED GRAVEL with SAND</b> (111-112 feet) Saturated, loose, no odor.					
			Primarily gravel to 25 mm with ~45% coarse to medium sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
4280			<b>WELL-GRADED GRAVEL with SAND</b> (112-115.5 feet) Saturated, loose, no odor.					
			Primarily gravel to 50 mm with ~30% coarse to medium sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines					

B/W-14 @ 107 - 112 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 10 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115			are nonplastic, are light brown, and do not react to HCl.					
		SP-SM	<b>POORLY GRADED SAND with SILT and GRAVEL</b> (115.5-117 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SP-SM	<b>POORLY GRADED SAND with SILT</b> (117-118.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace coarse sand to 3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
	4275	SM	<b>SILTY SAND</b> (118.5-120.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% fine gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
120		CL	<b>SANDY LEAN CLAY</b> (120.5-120.75 feet) Moist, hard, no odor. Primarily silt and clay with ~35% fine sand to 0.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SW						
		SW						
		CL	<b>WELL-GRADED SAND with GRAVEL</b> (120.75-121.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 30 mm and ~10% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SP						
		GW-GM	<b>WELL-GRADED SAND</b> (121.25-122 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace fine gravel to 15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are light brown, and do not react to HCl.					
	4270	SW	<b>SANDY LEAN CLAY</b> (122-122.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~30% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and do not react to HCl.					
125			<b>POORLY GRADED SAND</b> (122.5-123 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to 0.5 mm with ~5% silt and clay. The sand is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>WELL-GRADED GRAVEL with SILT and SAND</b> (123-124 feet) Saturated, loose, no odor. Primarily gravel to 35 mm with ~25% coarse to medium sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel angular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>WELL-GRADED SAND with GRAVEL</b> (124-130 feet) Saturated, loose, no odor.					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
130	4265		Primarily coarse to medium sand with ~15% gravel to 50 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW	<b>WELL-GRADED GRAVEL with SAND</b> (130-133.25 feet) Saturated, loose, no odor. Primarily gravel to 70 mm with ~25% coarse to medium sand and ~5% silt and clay. The sand is angular to subangular, the gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>LEAN CLAY</b> (133.25-134 feet) Dry, hard, no odor. Primarily silt and clay with ~10% fine sand (<0.5 mm). The fines have medium plasticity and toughness, are light yellowish brown (2.5Y 6/3), and do not react to HCl.					
135	4260	SP-SM	<b>POORLY GRADED SAND with SILT</b> (134-136 feet) Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~10% silt and clay. The sand is subangular to subrounded. The fines have low plasticity, are brown, and do not react to HCl.					
		SP	<b>POORLY GRADED SAND</b> (136-138.75 feet) Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4255	SW	<b>WELL-GRADED SAND</b> (138.75-141.75 feet) Saturated, loose, no odor. Primarily medium sand with ~5% fine gravel to 15 mm and ~5% silt and clay. The sand is angular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
140								

B/W-14 @ 128 - 133 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
145	4250	SW	<b>WELL-GRADED SAND with GRAVEL</b> (141.75-143.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~50% gravel to 35 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are dark brown, and do not react to HCl.	B/W-14 @ 140 - 145 Ft.				
		CL	<b>SANDY LEAN CLAY</b> (143.5-143.7 feet)					
		SW	Moist, stiff, no odor. Primarily silt and clay with ~40% medium to fine sand and trace coarse sand to 3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5YR 5/2), and do not react to HCl.					
		SP	<b>WELL-GRADED SAND</b> (143.7-144.8 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~20% fine sand, ~10% gravel to 20 mm, and ~5% silt and clay. The sand is angular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are dark brown, and do not react to HCl.					
			<b>INTERBEDDED POORLY-GRADED SAND and SANDY LEAN CLAY</b> (144.8-147.5 feet) Beds are 0.1 to 0.4 feet thick.					
			<b>POORLY-GRADED SAND</b> Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown (10YR 4/3), and do not react to HCl.					
		SP	<b>LEAN CLAY with SAND</b> Moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Some iron oxide and organic staining.					
		SP	<b>POORLY GRADED SAND</b> (147.5-148.5 feet) Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown (10YR 5/3), and do not react to HCl.					
			<b>INTERBEDDED POORLY-GRADED SAND and SANDY LEAN CLAY</b> (144.8-147.5 feet)					
		SP	<b>POORLY-GRADED SAND</b>					
150	4245	CL	Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown (10YR 4/3), and do not react to HCl.					
			<b>LEAN CLAY with SAND</b> Moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
			<b>POORLY GRADED SAND</b> (149.75-150 feet) Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown (10YR 5/3), and do not react to HCl.					
		SP	<b>LEAN CLAY</b> (150-152 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~5% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light brownish gray (2.5Y 6/2), and do not react to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 13 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155	4240		<b>CLAYEY SAND</b> (152-155 feet) Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		SP	<b>POORLY GRADED SAND</b> (155-156 feet) Saturated, loose, no odor. Completely medium to fine sand to 1 mm. The sand is subangular to subrounded.					
		SW	<b>WELL-GRADED SAND</b> (156-161.5 feet) Saturated, loose, no odor. Primarily medium sand with ~5% gravel to 40 mm, and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
	4235							
160								
		SW	<b>WELL-GRADED SAND</b> (161.5-162 feet) Saturated, loose, no odor.					
		SW	Primarily medium to fine sand with ~5% fine gravel to 10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (162-162.5 feet) Saturated, loose, no odor.					
			Primarily medium to fine sand with ~10% gravel to 25 mm. The sand is subangular to subrounded, the gravel is angular.					
	4230		<b>WELL-GRADED SAND</b> (162.5-165 feet) Saturated, loose, no odor.					
			Primarily medium to fine sand with ~5% gravel to 30 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, and do not react to HCl.					
165		CL	<b>LEAN CLAY with SAND</b> (165-166 feet) Moist, stiff, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Some iron oxide staining.					
		SM	<b>SILTY SAND</b> (166-167.5 feet) Saturated, loose, no odor.					
			Primarily fine sand (<0.5 mm) and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic,					

B/W-14 @ 155 - 160 Ft.

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-14**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **14** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			are yellowish brown (10YR 5/4), and do not react to HCl. Significant iron oxide staining.					
		CL	<b>LEAN CLAY</b> (150-152 feet) Moist to saturated, firm to stiff, no odor. Primarily silt and clay with ~30% medium to fine sand and ~5% gravel to 30 mm. The sand is angular to subrounded, the gravel is subrounded to rounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
4225								
		SC	<b>CLAYEY SAND with GRAVEL</b> (169.25-170 feet) Moist to saturated, medium dense, no odor. Primarily medium sand with ~40% gravel to 40 mm, and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines have medium plasticity and toughness, are dark brown, and do not react to HCl.					
170		SW						
		GW	<b>WELL-GRADED SAND with GRAVEL</b> (170-171 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~50% gravel to 40 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are dark brown, and do not react to HCl.					
			<b>WELL-GRADED GRAVEL with SAND</b> (171-173.5 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~30% sand and ~10% silt and clay. The sand is subangular to rounded, the gravel is subrounded to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (173.5-174 feet) Saturated, loose, no odor.					
4220		GW	Primarily coarse to medium sand with ~20% gravel to 30 mm. The sand is subangular to rounded, the gravel is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>WELL-GRADED GRAVEL with SAND</b> (174-176 feet) Saturated, loose, no odor. Primarily gravel to 60 mm with ~25% sand and ~5% silt and clay. The sand is angular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					
175								
		GW	<b>WELL-GRADED GRAVEL with SAND</b> (176-177.5 feet) Saturated, loose, no odor. Primarily gravel to 45 mm with ~30% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (177.5-178 feet) Saturated, loose, no odor.					
		SM	Primarily coarse to medium sand with ~35% gravel to 40 mm. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
4215			<b>CLAYEY SAND with GRAVEL</b> (178-180 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~35% gravel to 75 mm, and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines have medium plasticity and low to medium toughness, are brownish gray, and do not react to HCl.					

B/W-14 @ 173 - 178 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-14Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 15 of 16

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		GW	<b>WELL-GRADED GRAVEL with SAND</b> (180-181 feet) Saturated, loose, no odor. Primarily gravel to 30 mm with ~20% sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP	<b>POORLY GRADED SAND</b> (181-183.5 feet) Saturated, loose, no odor. Primarily medium to fine sand trace coarse sand to 3 mm. The sand is subangular to subrounded.					
4210		GW	<b>WELL-GRADED GRAVEL with SAND</b> (183.5-189.5 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~35% coarse to medium sand and ~5% silt and clay. The sand is angular to subrounded, the gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
185								
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (189.5-190.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~50% gravel to 30 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
4205		GW	<b>WELL-GRADED GRAVEL with SAND</b> (190.25-191 feet) Saturated, loose, no odor. Primarily gravel to 30 mm with ~20% sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
190		SP	<b>POORLY GRADED SAND</b> (191-193.75 feet) Saturated, loose, no odor. Completely medium to fine sand to 1 mm. The sand is angular to subangular.					

W-14 @ 190 - 195 Ft.

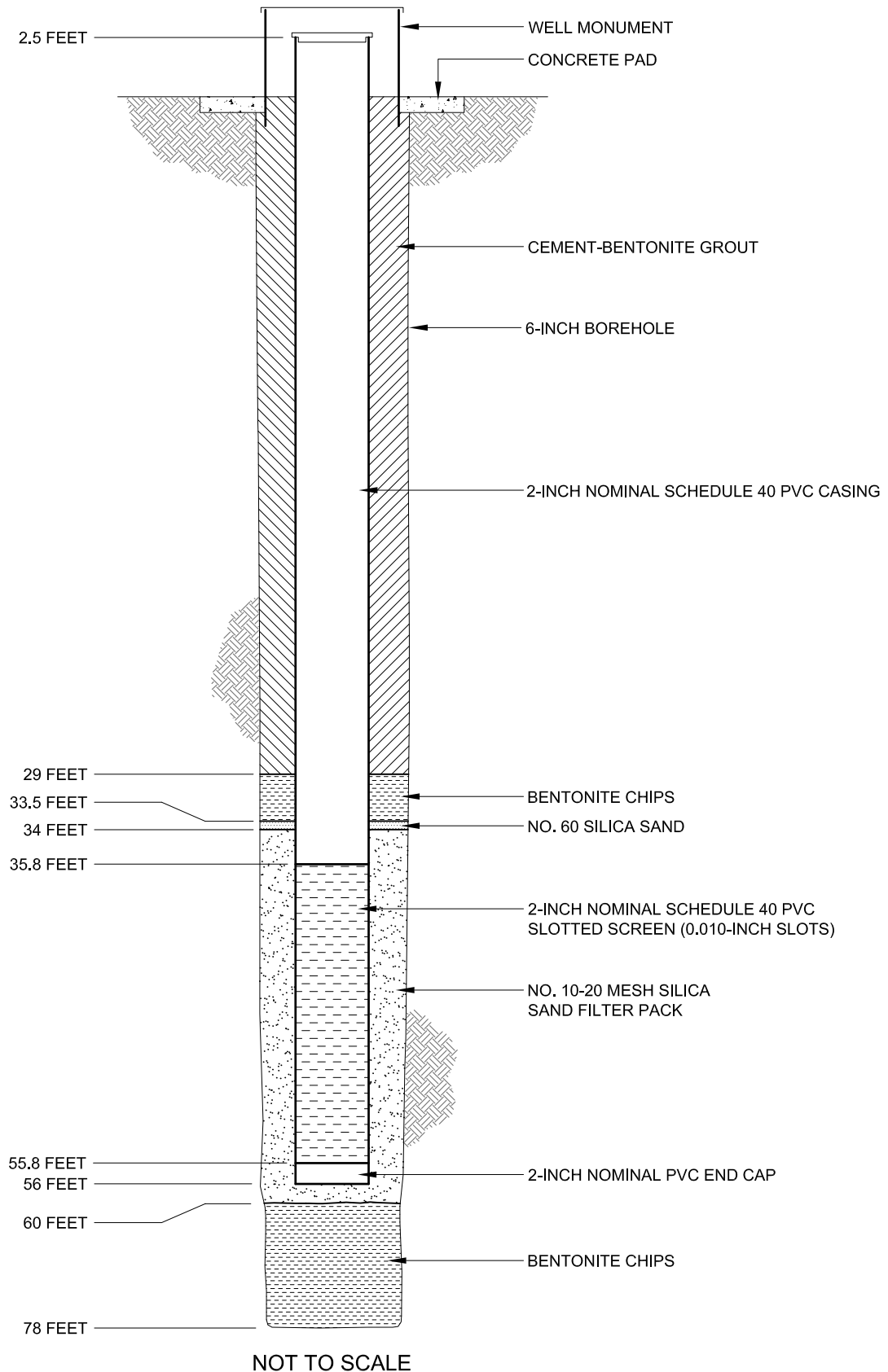
Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-14**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **16** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
195	4200	SM	<b>SILTY SAND</b> (193.75-194.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace fine gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND</b> (194.5-195 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% fine sand, ~10% fine gravel to 15 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to angular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (195-195.5 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to 10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (195.5-196.75 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~20% fine gravel to 12 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (196.75-197.25 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% fine gravel to 15 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND</b> (197.25-199.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 10 mm and ~10% silt and clay. The sand is angular to subangular, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (199.25-200 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 4 mm and ~25% silt and clay. The sand is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					





DATE: April 2006

PROJECT NUMBER: 129684

**BROWN AND  
CALDWELL**  
Carson City, Nevada

Atlantic Richfield  
Company

**Figure 2-18**

**Well B/W-15 Construction Details**

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-15**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **1** of **5**

Boring Location: <b>Northeast of Pit Lake, east of highway near river</b>		Elevation: <b>4384.3 feet amsl</b>	East: <b>330160.2</b> North: <b>1544187.5</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>B. Zamow</b>	Date Started: <b>7/19/05</b>	Date Finished: <b>7/22/05</b>
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>78.0</b>	Water Depth: (feet) <b>5' / 8.75'</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>35.8-55.8 ft., bottom at 56 ft.</b>	
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>	Filter Material: <b>#10-20 Silica Sand</b>
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	<b>SILTY SAND with GRAVEL</b> (0-2 feet) Dry, medium dense, no odor. Primarily sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					<p>Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.</p> <p>Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.</p> <p>All depths are below land surface unless stated otherwise.</p> <p>WELL DESIGN for B/W-15: Screened Interval: 35.8-55.8 feet. Bottom of sump: 56 feet.</p> <p>Cement Grout: 0-29 feet. Bentonite Chips: 29-33.5 feet. Filter Pack: #60 Sand 33.5-34 feet, #10-20 Sand 34-60 feet. Bentonite Chips: 60-78 feet.</p> <p>Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,386.76 feet, amsl. PVC Stick-up: 2.5 feet above land surface.</p>
		CL	<b>SANDY LEAN CLAY</b> (2-6 feet) Moist, firm, no odor. Primarily silt and clay with ~35% medium to fine sand and trace coarse sand to 3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (6-15 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-15Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
20	4365	SW	<b>WELL-GRADED SAND</b> (15-16.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are light grayish brown, and do not react to HCl.					
		GW	<b>WELL-GRADED GRAVEL with SAND</b> (16.5-17.5 feet) Saturated, loose, no odor.					
		SW	Primarily fine gravel to 30 mm with ~30% coarse to medium sand and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light grayish brown, and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (17.5-27.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~5% fine gravel to 15 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light grayish brown, and do not react to HCl. Interval has a gravel layer from 23.75 to 24.25 feet. This layer is 50% gravel to 25 mm and 50% sand. The sand and gravel are subangular to rounded.					
25	4360							
30	4355	SW	<b>WELL-GRADED SAND with GRAVEL</b> (27.5-33 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~25% gravel to 30 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light grayish brown, and do not react to HCl. Interval has a gravel layer from 30 to 30.5 feet. This layer is 40% gravel to 35 mm and 60% sand. The sand and gravel are subangular to rounded.					
35	4350	SW	<b>WELL-GRADED SAND with GRAVEL</b> (33-35 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 33 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light grayish					

B/W-15 @ 30 - 35 Ft.

## BORING LOG

Well Number: **B/W-15**

□



**121243.021**

Sheet **3** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
35			brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (35-36.75 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~40% gravel to 45 mm, and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (36.75-39.25 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% gravel to 40 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4345								
40		ML	<b>SANDY SILT</b> (39.25-42.5 feet) Saturated, stiff, no odor. Primarily silt and clay with ~30% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have low plasticity and toughness, are light grayish brown (10YR 5/2), and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (42.5-45.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace fine gravel to 15 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4340								
45		CL	<b>LEAN CLAY with SAND</b> (45.5-46.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~15% fine sand and trace medium sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and low toughness and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (46.5-47.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace coarse sand to 3.5 mm and trace silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4335		GW	<b>WELL-GRADED GRAVEL with SAND</b> (47.5-54.5 feet) Saturated, loose, no odor. Primarily gravel to 45 mm with ~30% coarse to medium sand and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
50								

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-15**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **4** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
55		SM	<b>SILTY SAND with GRAVEL</b> (54.5-55 feet) Moist to saturated, medium dense, no odor.					
		SW	Primarily medium to fine sand with ~20% coarse sand, ~30% gravel to 20 mm, and ~25% silt and clay. The sand and gravel are subangular to subrounded. The have low plasticity and toughness, are brown, and do not react to HCl.					
		GW						
		SW	<b>WELL-GRADED SAND</b> (55-55.5 feet) Saturated, loose, no odor.					
			Primarily coarse to medium sand with ~10% gravel to 30 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW						
		CL	<b>WELL-GRADED GRAVEL with SAND</b> (55.5-56 feet) Saturated, loose, no odor.					
			Primarily gravel to 30 mm with ~15% sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, and do not react to HCl.					
4325		CL	<b>WELL-GRADED SAND with GRAVEL</b> (56-57.25 feet) Saturated, loose, no odor.					
60			Primarily medium to fine sand with ~40% gravel to 40 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic and do not react to HCl.					
		SP-SM	<b>WELL-GRADED SAND</b> (57.25-58 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand with ~5% fine gravel to 10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are light brown, and do not react to HCl.					
			<b>LEAN CLAY with SAND</b> (58-59.5 feet) Moist, stiff, no odor.					
			Primarily silt and clay with ~20% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
4320			<b>SANDY LEAN CLAY</b> (59.5-60.75 feet) Moist, firm, no odor.					
65			Primarily silt and clay with ~20% fine sand, ~15% coarse to medium sand, and trace fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is subrounded. The fines have medium plasticity and low toughness, are brown (10YR 4/3), and do not react to HCl.					
			<b>POORLY-GRADED SAND with SILT</b> (60.75-63.25 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand with trace fine gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>WEATHERED GRANITE</b> (63.25-78 feet) Dry, very dense, no odor.					
			Weathered granite with ~30% fines. The granite is quartz dominated with white orthoclase. The fines have medium plasticity and toughness, are light gray (2.5Y 7/1), and do not react to HCl.					
4315								
70								

B/W-15 @ 60 - 65 Ft.

## ***BORING LOG***

Well Number: **B/W-15**

Sheet 5 of 5

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: Yerington

Project Number: 132025.002

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Name: B/W-16

Sheet 1 of 10

<b>Boring Location:</b> North of mine site on north side of west end of Luzier Lane.	<b>Northing:</b> 1557432.8	<b>Easting:</b> 316975.2
<b>Drilling Contractor:</b> Boart Longyear	<b>Top of PVC Elevation:</b> 4521.69 feet amsl <b>Ground Surface Elevation:</b> 4518.8 feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Date Started:</b> 10/2/07	<b>Date Finished:</b> 10/6/07
<b>Drilling Method:</b> Sonic, utilized 6" casing and a 4.5" core barrel	<b>Completed Depth:</b> 295 fbsgs	<b>Water Depth:</b> 191.54 fbsmp
<b>Sampling Method:</b> Core Barrel	<b>WELL CONSTRUCTION</b>	
<b>Driller:</b> R. Salois	<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
<b>Well Seal:</b> Bentonite and Cement	<b>Slot Size:</b> 0.010 inch <b>Filter Material:</b> #10-20 Silica Sand	
<b>Borehole Diameter:</b> 6		
<b>Logged By:</b> R. Banda		
<b>Drilling Fluid:</b> Water		

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (0 - 2.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
	4515	SW-SM	<b>Well-Graded Sand with Silt (2.5 - 6.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 30 mm and ~10% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, have a light brown color, and do not react to HCl.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
5		SW-SM	<b>Well-Graded Sand with Silt and Gravel (6.5 - 10)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
	4510	SW-SM	<b>Well-Graded Sand with Silt and Gravel (6.5 - 10)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					All depths are below land surface unless stated otherwise.
10		SM	<b>Silty Sand (10 - 12.5)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					WELL DESIGN for B/W-16: PVC Pickup: 2.89 feet Cement - Bentonite Grout: 0 - 181 feet Bentonite Chips: 181 - 186 feet No. 60 Silica Sand: 186 - 187 feet #10-20 Silica Sand Filter Pack: 187 - 213 feet 2-inch Nominal Schedule 80 PVC (0.010-inch) Slotted Screen: 190 - 210 feet Native Collapse: 220 - 295 feet
	4505	SW	<b>Well-Graded Sand with Gravel (12.5 - 19.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~30% gravel to 15 mm and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					
15		SW	<b>Well-Graded Sand with Gravel (12.5 - 19.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~30% gravel to 15 mm and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					
	4500	SW	<b>Well-Graded Sand with Gravel (12.5 - 19.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~30% gravel to 15 mm and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					
20		ML	<b>Sandy Silt (19.5 - 21)</b> Dry, medium dense, no odor. Primarily silt and clay with ~35% medium to fine sand to 7mm. The sand is angular to subangular. The fines are nonplastic, have an orange brown color, and have a strong reaction to HCl.					Number of wells at this location: 1 Screen intervals for paired wells are labeled at the installed depths.
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (21 - 23)</b> Dry, medium dense, no odor. Primarily coarse sand with ~30% gravel to 30 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					
	4495	SM	<b>Silty Sand (23 - 33.5)</b>					

Carson City, Nevada

**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐Boring/Well Name: B/W-16Sheet 2 of 10

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
30	4490		Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 7 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl. Some cobblestone sized pieces of volcanic tuff from 25 - 30					
35	4485	SM	<b>Silty Sand (33.5 - 36.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		ML	<b>Sandy Silt (36.5 - 38)</b> Dry, very dense, no odor. Primarily silt and clay with ~30% medium to fine sand and ~5% gravel to 60 mm. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
40	4480	SM	<b>Silty Sand with Gravel (38 - 43.5)</b> Dry, very dense, no odor. Primarily coarse to medium sand with ~15% gravel to 25 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
45	4475	ML	<b>Sandy Silt (43.5 - 46)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% coarse to fine sand and ~10% gravel to 10 mm. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					
		ML	<b>Sandy Silt (46 - 48)</b> Dry, medium dense, no odor. Primarily silt and clay with ~20% medium to fine sand and ~5% gravel to 10 mm. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
50	4470	ML	<b>Sandy Silt (48 - 50)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% coarse to fine sand and ~10% gravel to 10 mm. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (50 - 55.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
55	4465	SM	<b>Silty Sand (55.5 - 57)</b> Dry, very dense, no odor. Primarily medium to fine sand with					



Carson City, Nevada

**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐Boring/Well Name: B/W-16Sheet 3 of 10

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SM	~5% gravel to 10 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
4460		SM	<b>Silty Sand (57 - 59)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
60			<b>Silty Sand (59 - 69)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 40 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.					
4455								
65								
4450		ML	<b>Sandy Silt (69 - 72)</b> Dry, dense, no odor. Primarily silt and clay with ~45% fine to medium sand and 5% coarse sand to 7 mm. The sand is angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
70		ML	<b>Sandy Silt (72 - 73.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~25% medium to fine sand and ~5% gravel to 10 mm. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					
4445		SM	<b>Silty Sand (73.5 - 80)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 75 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a brown color, and have a strong reaction to HCl.					
75								
4440		SM	<b>Silty Sand (80 - 81.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
80		SM	<b>Silty Sand (81.5 - 95)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 75 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
4435								
85								

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**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐Boring/Well Name: B/W-16Sheet 4 of 10

Depth (ft)	Elevation (fmsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
90	4430							
95	4425							
100	4420	SM	<b>Silty Sand (95 - 103.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
105	4415	SM	<b>Silty Sand (103.5 - 107)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a strong reaction to HCl.					
110	4410	SM	<b>Silty Sand (107 - 115)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
115	4405							
		SM	<b>Silty Sand (115 - 117.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and 40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.					
120	4400	SM	<b>Silty Sand with Gravel (117.5 - 128)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to >100 mm and 25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl. Cutting through boulders of tuff and granite.					

Carson City, Nevada

**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐Boring/Well Name: B/W-16Sheet **5** of **10**

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
125	4395							
130	4390	CL	<b>Sandy Lean Clay (128 - 130)</b> Dry, very dense, no odor. Primarily silt and clay with ~20% medium to fine sand with ~5% gravel to 7 mm. The sand and gravel are angular to subangular. The fines have low to medium plasticity and toughness, have an orange brown color, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (130 - 133)</b> Dry, very dense, no odor. Primarily silt and clay with ~25% medium to fine sand and ~5% gravel to 7 mm. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, have a light brown color, and have a weak reaction to HCl.					
135	4385	SM	<b>Silty Sand (133 - 137.5)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~10% gravel to 10 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and have a weak reaction to HCl.					
140	4380	CL	<b>Sandy Lean Clay (137.5 - 154)</b> Dry, very dense, no odor. Primarily silt and clay with ~30% medium to fine sand and ~5% gravel to 10 mm. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have a brown color, and have a weak reaction to HCl.					
145	4375							
150	4370							

Carson City, Nevada

**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐Boring/Well Name: B/W-16Sheet 6 of 10

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
155	4365	SM	<b>Silty Sand (154 - 156)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~5% gravel to 15 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
160	4360	SM	<b>Silty Sand (156 - 166)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
165	4355							
170	4350	SW	<b>Well-Graded Sand (166 - 169.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and do not react to HCl.					
175	4345	CL	<b>Sandy Lean Clay (169.5 - 173.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~25% medium to fine sand and ~10% gravel to 15 mm. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have a light brown color, and have a weak to strong reaction to HCl.					
180	4340	SW	<b>Well-Graded Sand (173.5 - 176)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~5% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded to rounded. The fines are nonplastic, have a brown color, and do not react to HCl.					
		SM	<b>Silty Sand (176 - 177.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a light brown color, and do not react to HCl.					
		SW	<b>Well-Graded Sand (177.5 - 184.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~10% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded to rounded. The fines are nonplastic, have a brown color, and do not react to HCl.					

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**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐Boring/Well Name: B/W-16Sheet 7 of 10

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
185	4335	SC	<b>Clayey Sand with Gravel (184.5 - 196)</b> Moist to saturated, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 10 mm and ~35% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
190	4330							
195	4325							
200	4320	SC	<b>Clayey Sand (196 - 205)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, and have a weak reaction to HCl.					
205	4315							
210	4310	SC CL	<b>Clayey Sand with Gravel (205 - 206)</b> Saturated, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~20% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, and have a weak to strong reaction to HCl.  <b>Sandy Lean Clay (206 - 214.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~25% medium to fine sand with ~10% gravel to 10 mm. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have a dark brown color, and have a weak reaction to HCl. Zone is moist from 206 - 207 only.					
215	4305	SM	<b>Silty Sand (214.5 - 218.5)</b>					

B/W-16S screened from 190 to 210 feet bgs (shallow).

B/W-16S water level on 4/23/08 (191.54 ft bgs)



Carson City, Nevada

**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐Boring/Well Name: BW-16Sheet **8** of **10**



Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
220	4300	SM	<b>Silty Sand with Gravel (218.5 - 223.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a dark brown color, and have no reaction to a weak reaction to HCl.					
225	4295	SM	<b>Silty Sand (223.5 - 226)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (226 - 229)</b> Dry to moist, very dense, no odor. Primarily coarse to fine sand with gravel to 20 mm. The sand and gravel are angular to subangular. The fines are nonplastic, have a brown color, and have no reaction to a weak reaction to HCl.					
230	4290	SW	<b>Well-Graded Sand with Gravel (229 - 230.5)</b> Dry, very dense, no odor. Primarily fine sand (< 1/2 mm) with ~20% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have a light brown color, and do not react to HCl.					
		SM	<b>Silty Sand (230.5 - 237)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have a brown color, and have no reaction to a weak reaction to HCl. There are 1/2" pieces of granite and tuff at ~234' bgs.					
235	4285							
		SP	<b>Poorly Graded Sand (237 - 239)</b> Moist, very dense, no odor. Primarily medium to fine sand with no gravel and ~10% silt and clay. The sand is subangular to subrounded to rounded. The fines are nonplastic, have a brown color, and do not react to HCl.					
240	4280	SM	<b>Silty Sand (239 - 240)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have a brown color, and have no reaction to a weak reaction to HCl.					
		CL						
		CL						
		SM	<b>Sandy Lean Clay (240 - 240.5)</b> Moist, very dense, no odor. Primarily silt and clay with ~35% medium to fine sand and very little gravel up to 7 mm. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
245	4275		<b>Sandy Lean Clay with Gravel (240.5 - 241.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~15% coarse sand and ~15% gravel to 30 mm. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness have a dark brown color, and					

**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring ☐Monitoring Well: ☒Piezometer: ☐Boring/Well Name: B/W-16Sheet **9** of **10**

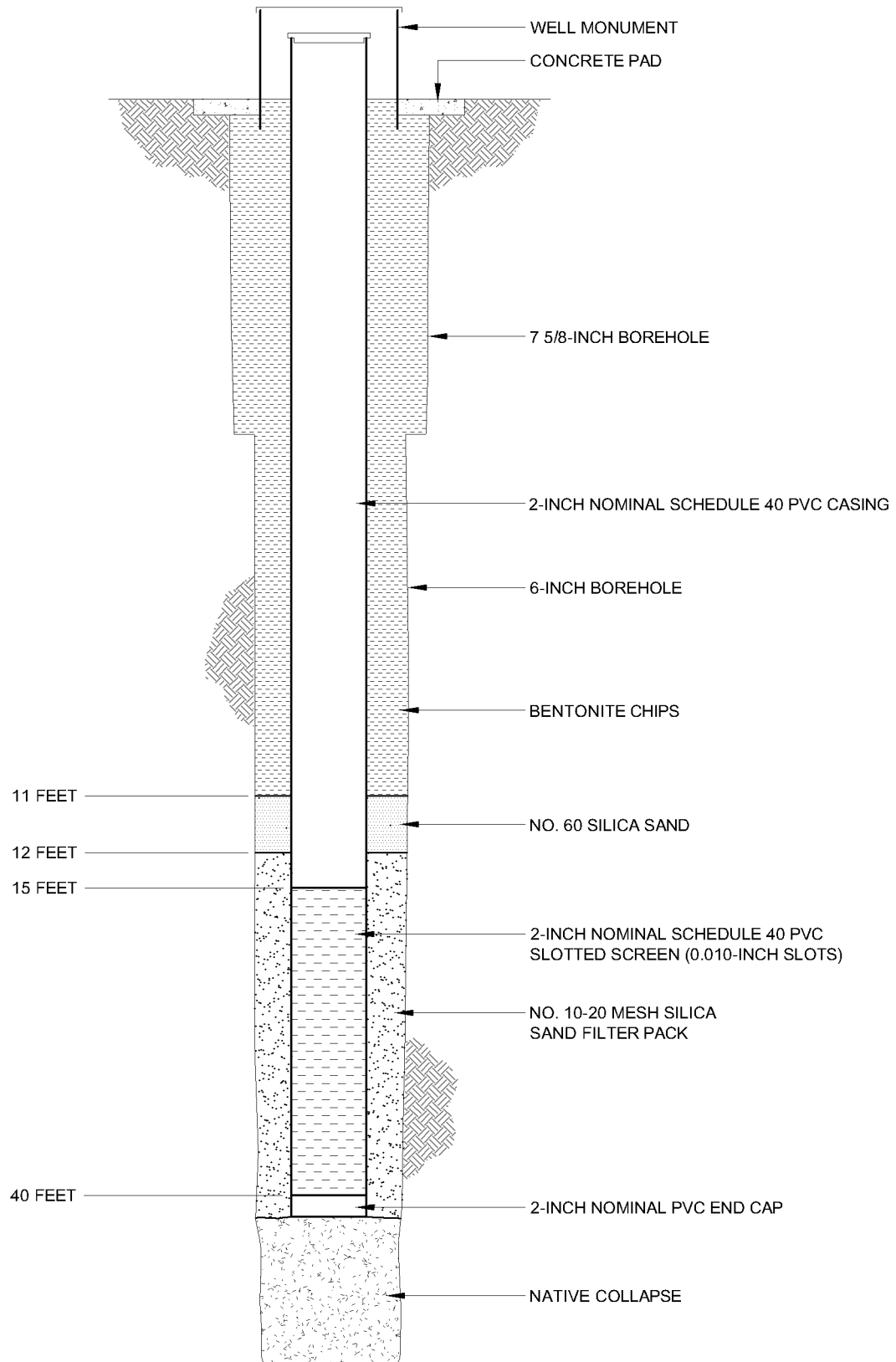
Depth (ft)	Elevation (ftmsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
250	4270	SM	do not react to HCl. There are pieces of granite in the sample. <b>Silty Sand with Gravel (241.5 - 249)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have a brown color, and have a weak to strong reaction to HCl.					
			<b>Silty Sand with Gravel (249 - 251)</b> Dry to moist, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 25 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.					
255	4265	CL	<b>Weathered Granite (251 - 253)</b> Dry, very dense, no odor. Possibly a boulder or bedrock with little clay matrix. Zone has sand white and pink color and has a weak reaction to HCl.					
		SM	<b>Sandy Lean Clay (253 - 256)</b> Moist, soft, no odor. Primarily silt and clay with ~20% medium to fine sand with ~5% gravel. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, have a dark brown color, and have no reaction to a weak reaction to HCl.					
		CL	<b>Silty Sand (256 - 257)</b> Dry to moist, soft, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and 30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a dark brown color, and have a weak reaction to HCl.					
260	4260	SM	<b>Sandy Lean Clay (257 - 259)</b> Moist, soft, no odor. Primarily silt and clay with ~20% medium to fine sand with ~5% gravel. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, have a dark brown color, and have no reaction to a weak reaction to HCl.					
		Tuff SM	<b>Silty Sand with Gravel (259 - 260.5)</b> Moist, dense, no odor. Primarily coarse sand with ~15% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a dark brown color, and have a weak reaction to HCl.					
265	4255	CL	<b>Volcanic Tuff (260.5 - 261)</b> Dry, dense, no odor. Zone has white color and a weak reaction to HCl. There is a weak reaction to the HCl.					
		CL	<b>Silty Sand with Gravel (261 - 265)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm and 30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a brown color, and have a strong reaction to HCl.					
270	4250		<b>Sandy Lean Clay (265 - 267)</b> Dry, very dense, no odor. Primarily silt and clay with ~30% medium to fine sand with ~5% gravel to 30 mm. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, have a dark brown color, and do not react to HCl.					
275	4245		<b>Sandy Lean Clay (267 - 279.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~25% medium to fine sand and ~10% gravel to 50 mm. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have a dark brown color, and have no reaction to a weak reaction to HCl. Zone has large pieces of weathered granite throughout.					

Carson City, Nevada

**BORING LOG**Project Name: YeringtonProject Number: 132025.002Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐Boring/Well Name: BW-16Sheet **10** of **10**

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
280		Tuff	<b>Volcanic Tuff (279.5 - 280.5)</b> Dry, dense, no odor. Zone has white color and a weak reaction to HCl. There is a weak reaction to the HCl.					
		SM	<b>Silty Sand with Gravel (280.5 - 295)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have a light brown color, and have a weak to strong reaction to HCl. Zone has large pieces (up to 3-inches) of tuff.					
4235								
285								
4230								
290								
4225								
295			Bottom of Borehole at 295 feet below ground surface.					
4220								
300								
4215								
305								
4210								
310								





NOT TO SCALE

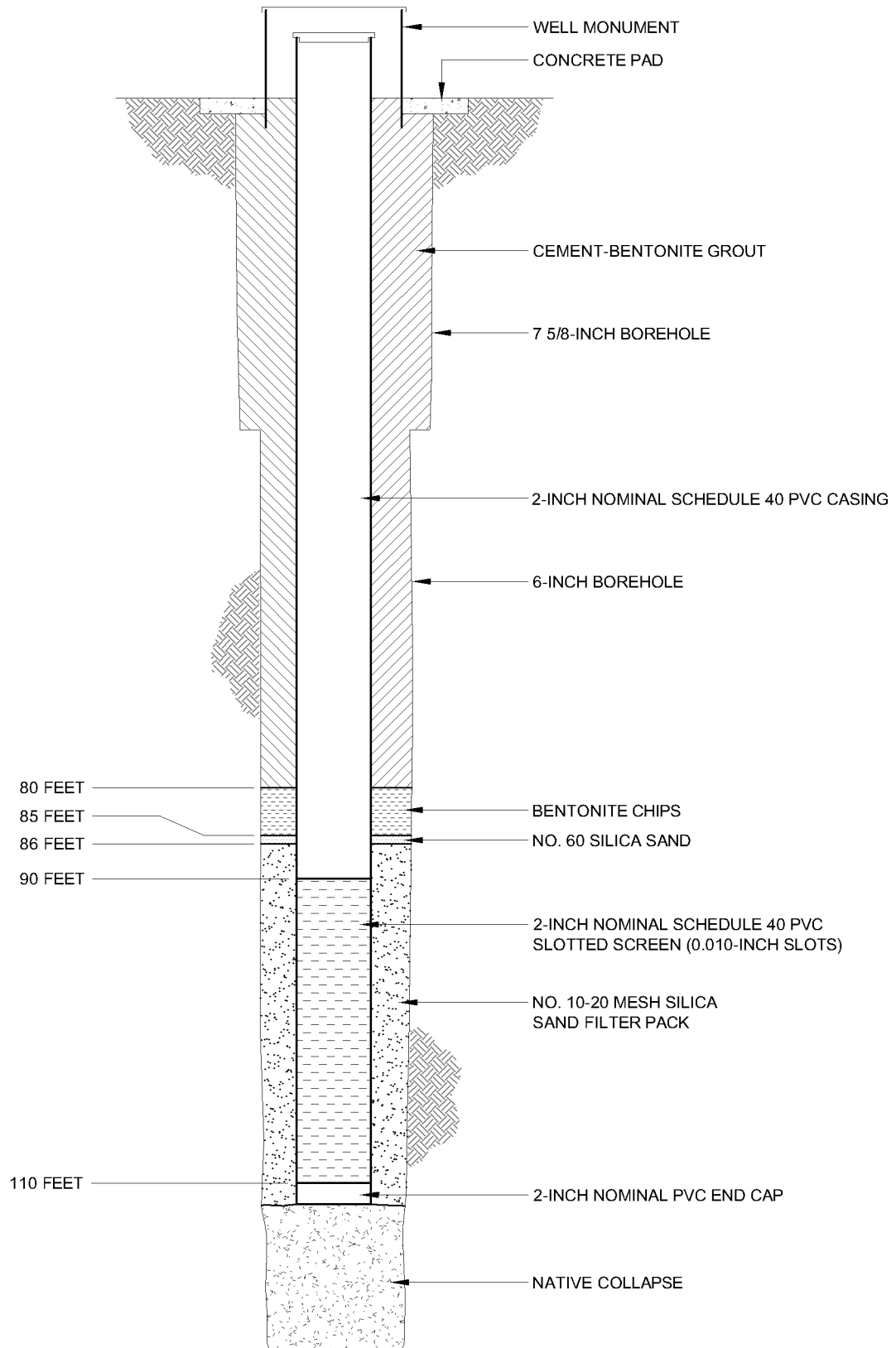
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-18S  
Construction Details**



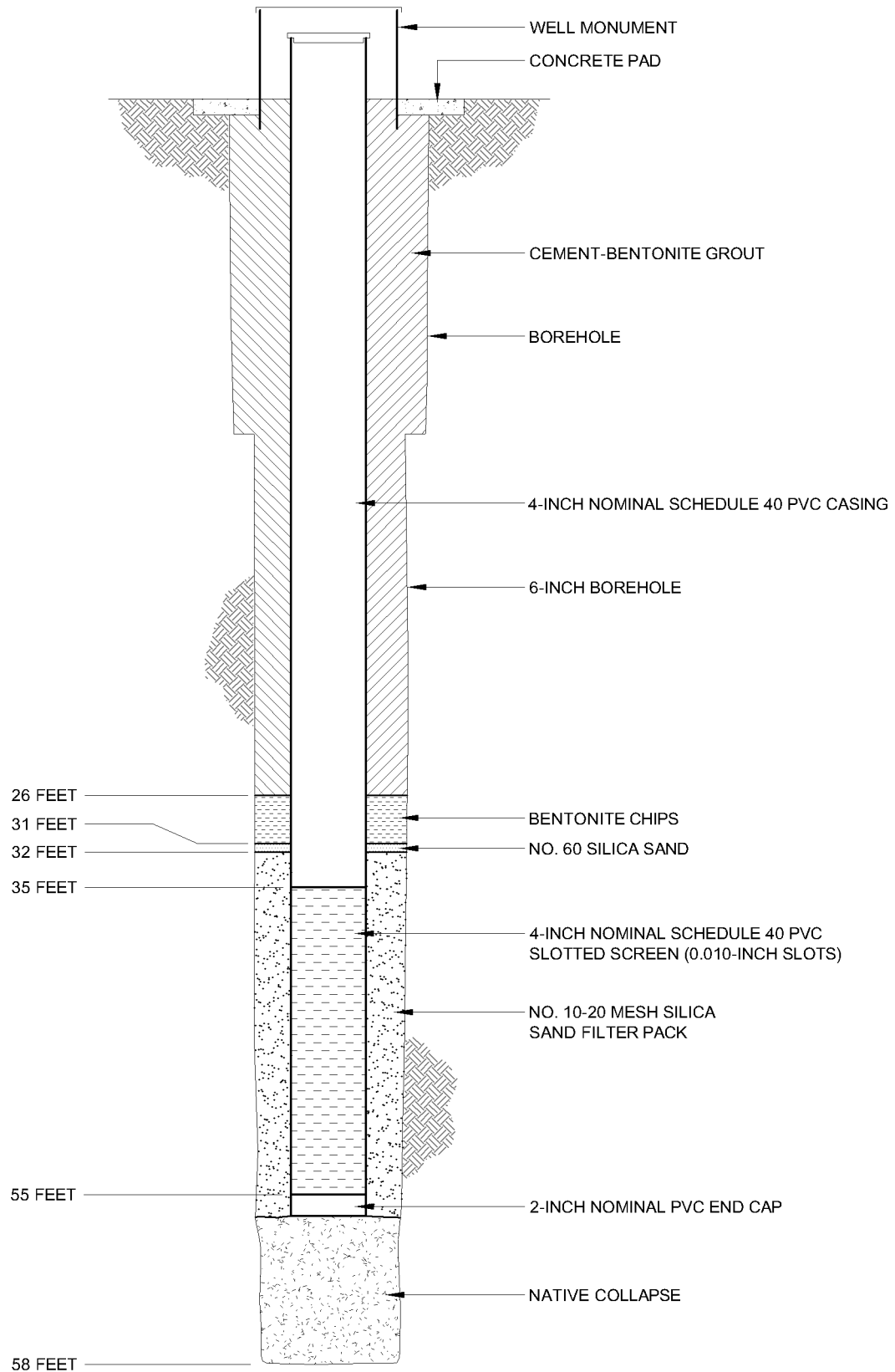
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-19S  
Construction Details**



**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-20  
Construction Details**

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-20

Sheet 1 of 4

<b>Boring Location:</b> 170 Highway 339				<b>Northing:</b>		<b>Easting:</b>	
<b>Drilling Contractor:</b> Boart Longyear		<b>Driller:</b> D. Reed		<b>Top of PVC Elevation:</b> feet amsl			
<b>Drilling Equipment:</b> GP24-300RS		<b>Borehole Diameter:</b> 8-inches		<b>Ground Surface Elevation:</b> feet amsl			
<b>Drilling Method:</b> Sonic		<b>Drilling Fluid:</b> Water		<b>Date Started:</b> 7/13/07		<b>Date Finished:</b> 7/14/07	
<b>Sampling Method:</b> Core Barrel				<b>Completed Depth:</b> 58 fbgs		<b>Water Depth:</b> fbmp	
<b>Well Seal:</b> Bentonite and Cement				<b>WELL CONSTRUCTION</b>			
<b>Logged By:</b> R. Banda and C. Strauss				<b>Type and Diameter of Well Casing:</b> 4-inch Schedule 40 PVC			
				<b>Slot Size:</b> 0.020 inch <b>Filter Material:</b> #10-20 Silica Sand			
Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction
5		SW-SM	<b>Well-Graded Sand with Gravel (0 - 2.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to 50 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a weak reaction to HCl.				
		SM	<b>Silty Sand (2.5 - 13.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.				
		SM	<b>Silty Sand (13.5 - 15.5)</b> Dry to moist, loose, no odor. Primarily fine sand (< 1/2 mm) with ~10% medium sand to 2 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and have a weak to strong				
<p>Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.</p> <p>Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.</p> <p>Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.</p> <p>All depths are below land surface unless stated otherwise.</p> <p><b>WELL DESIGN for B/W-20:</b>  PVC Stickup: feet.  Cement - Bentonite Grout: 0 - 69 feet  Bentonite Chips: 26 - 31 feet  No. 60 Silica Sand: 31 - 32 feet  #10-20 Silica Sand Filter Pack: 32 - 55 feet  2-inch Nominal Schedule 80 PVC 0.020  Slotted Screen: 35 - 55 feet  Native Collapse: 55 - 58 feet  Additional Bentonite Fill: NA feet</p> <p>Number of wells at this location: 1  Screen intervals for paired wells are labeled at the installed depths.</p>							

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-20

Sheet 2 of 4

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			reaction to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt (15.5 - 19.5)</b> Dry to moist, loose, no odor. Primarily medium to fine sand with no gravel, ~5% coarse sand to 5 mm, and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and have a weak reaction to HCl.					
20		SW	<b>Well-Graded Sand with Gravel (19.5 - 20.5)</b> Dry, dense, no odor. Primarily coarse sand with ~15% gravel to 40 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, have a light grey color, and have a weak reaction to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt (20.5 - 28)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 30 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
25								
		SM	<b>Silty Sand with Gravel (28 - 37.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
30								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-20

Sheet 3 of 4

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35								
		SW	<b>Well-Graded Sand (37.5 - 40)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 3 mm, no gravel, and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, have a brown color, and do not react to HCl.					
40		CL	<b>Sandy Lean Clay (40 - 41)</b> Moist, dense, no odor. Primarily silt and clay with ~5% gravel to 20 mm and ~40% medium to fine sand. The sand and gravel are subangular to subrounded. The fines are nonplastic, have a dark brown color, and have no reaction to a weak reaction to HCl.					
		SM	<b>Silty Sand (41 - 44.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
45		SW	<b>Well-Graded Sand with Gravel (44.5 - 46.5)</b> Saturated, dense, no odor. Primarily coarse sand with ~30% gravel to 50 mm and ~10% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (46.5 - 48.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with no gravel, ~5% coarse sand to 5 mm, and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, have a brown color, and do not react to HCl.					
		SM	<b>Silty Sand (48.5 - 50)</b> Saturated, dense, no odor. Primarily fine sand ( < 1/2 mm) with ~5% gravel to 60 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
50		SW	<b>Well-Graded Sand (50 - 54)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 50 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025



Soil Boring: ☐

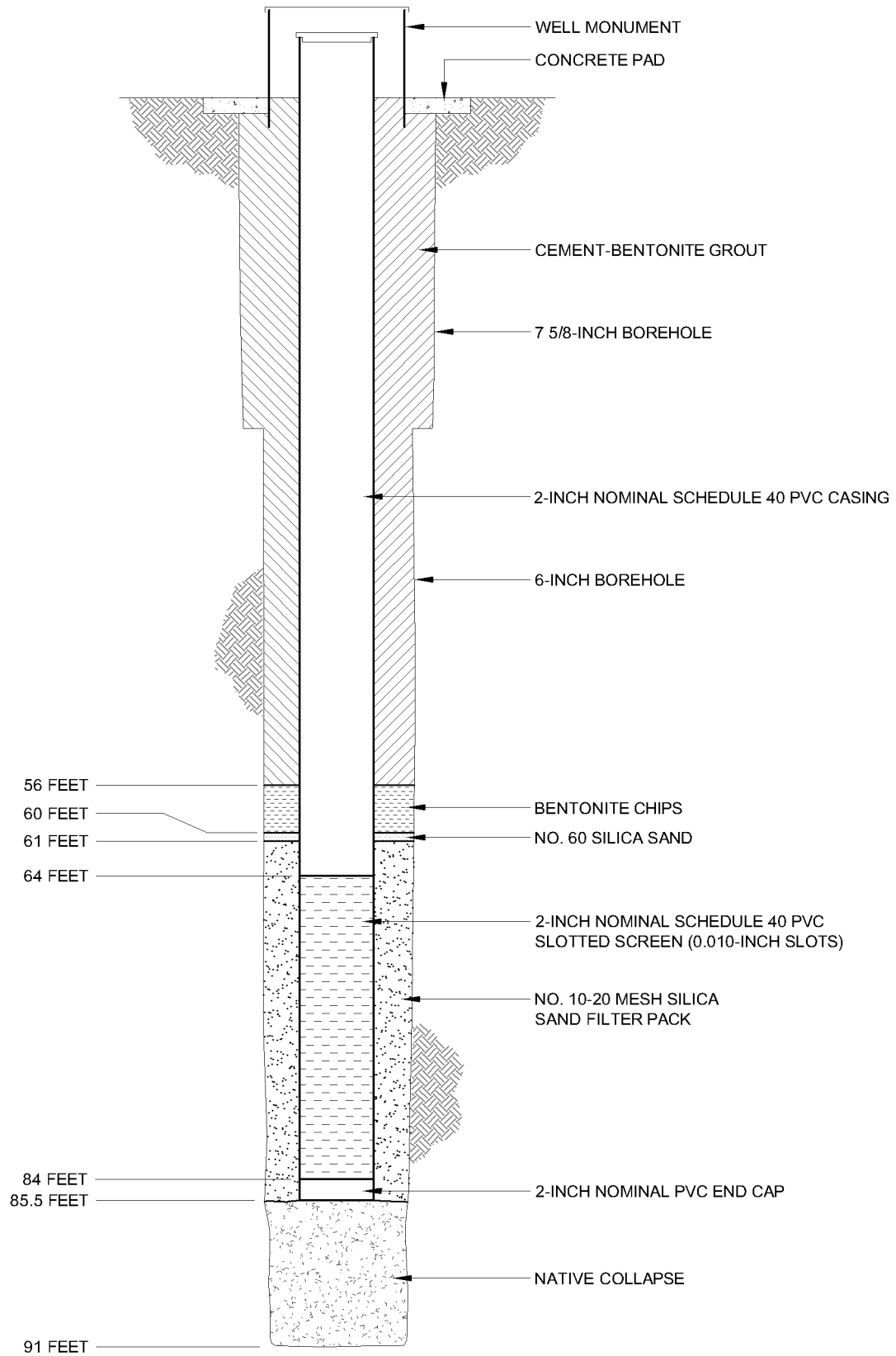
Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-20

Sheet 4 of 4

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55		SW	<p><b>Well-Graded Sand (54 - 58)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 50 mm and ~5% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and do not react to HCl.</p>					
			Bottom of Borehole at 58 feet below ground surface.					



**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-21  
Construction Details**



Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-21

Sheet 1 of 5

<b>Boring Location:</b> Located inside the mine site.		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> D. Reed	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 7/18/07	<b>Date Finished:</b> 7/24/07
		<b>Completed Depth:</b> 91 fbgs	<b>Water Depth:</b> fbmp
<b>Sampling Method:</b> Core Barrel		<b>WELL CONSTRUCTION</b>	
<b>Well Seal:</b> Bentonite and Cement		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC	
<b>Logged By:</b> R. Banda and C. Strauss		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SM	<b>Silty Sand (0 - 12)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.  Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.  <b>WELL DESIGN for B/W-21:</b> PVC Stickup: feet. Cement - Bentonite Grout: 0 - 56 feet Bentonite Chips: 56 - 60 feet No. 60 Silica Sand: 60 - 61 feet #10-20 Silica Sand Filter Pack: 61 - 85.5 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 64 - 84 feet Native Collapse: 85.5 - 91 feet Additional Bentonite Fill: NA feet  Number of wells at this location: 1 Screen intervals for paired wells are labeled at the installed depths.
		ML	<b>Silty Sand with Gravel (12 - 14)</b> Dry, dense, no odor. Primarily medium to coarse sand with ~15% gravel to 20 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (14 - 17)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-21

Sheet 2 of 5

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW-SM	<b>Well-Graded Sand (17 - 18)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (18 - 20)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
20		SM	<b>Silty Sand (20 - 22.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (22.5 - 23)</b> Dry, dense, no odor. Primarily medium to coarse sand with ~5% gravel to 15 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		ML						
		SM	<b>Sandy Silt (23 - 23.5)</b> Dry, dense, no odor. Primarily silt and clay with ~10% medium to fine sand and ~5% gravel to 10 mm. The sand and gravel are angular to subangular. The fines are nonplastic, have a light grey color, and do not react to HCl.					
25			<b>Silty Sand (23.5 - 26.5)</b> Dry to moist, dense, no odor. Primarily medium to coarse sand with ~10% gravel to 25 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a brown color, and do not react to HCl.					
		ML	<b>Sandy Silt (26.5 - 29)</b> Dry, very dense, no odor. Primarily silt and clay with ~25% coarse sand and ~5% gravel to 15 mm. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		ML	<b>Sandy Silt (29 - 35)</b> Dry, very dense, no odor. Primarily silt and clay with ~20% coarse to medium sand and ~10% gravel to 15 mm. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
30								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-21

Sheet 3 of 5

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35		SW-SM	<b>Well-Graded Sand with Gravel (35 - 36.5)</b> Dry, very dense, no odor. Primarily medium to coarse sand with ~20% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		ML	<b>Sandy Silt (36.5 - 38)</b> Dry, very dense, no odor. Primarily silt and clay with ~20% coarse to medium sand and ~10% gravel to 15 mm. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (38 - 39)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
40		ML	<b>Sandy Silt (39 - 42)</b> Dry, very dense, no odor. Primarily silt and clay with ~20% coarse to medium sand and ~10% gravel to 15 mm. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (42 - 43)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt (43 - 46)</b> Dry to moist, dense, no odor. Primarily fine sand ( < 1/2 mm) with ~10% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
45		SM	<b>Silty Sand (46 - 47)</b> Dry, very dense, no odor. Primarily fine sand ( < 1/2 mm) with ~10% gravel to 30 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		ML	<b>Sandy Silt (47 - 49.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~10% gravel to 25 mm and ~30% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have low to medium plasticity and toughness, and do not react to HCl.					
50		SM	<b>Silty Sand (49.5 - 50)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt (50 - 56)</b> Moist, dense, no odor. Primarily medium to fine sand with no gravel, a maximum grain size of 1 mm, and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-21

Sheet 4 of 5

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55								
		SM	<b>Well-Graded Sand with Silt and Gravel (56 - 58)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~40% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW	<b>Well-Graded Sand with Gravel (58 - 60)</b> Dry to moist, dense, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
60		SM	<b>Silty Sand (60 - 62)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand with Gravel (62 - 65.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
65		SW	<b>Well-Graded Sand with Gravel (65.5 - 70)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~20% gravel to 15 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
70		SM	<b>Silty Sand with Gravel (70 - 71)</b> Saturated, dense, no odor. Primarily coarse to fine sand with ~25% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Lean Clay with Sand (71 - 73.5)</b>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

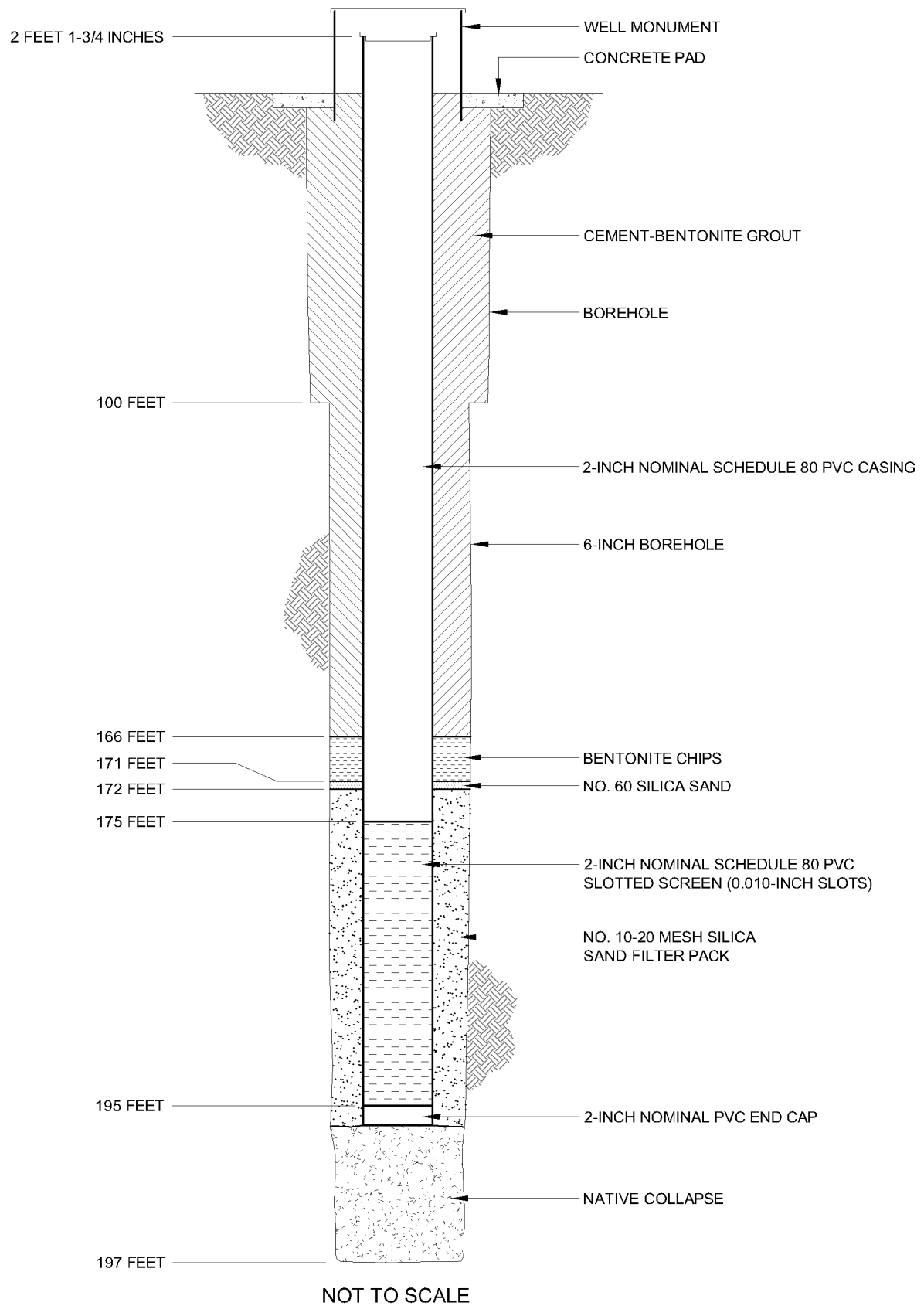
Piezometer: ☐

Boring/Well Number: B/W-21

Sheet 5 of 5

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75			Dry, very dense, no odor. Primarily silt and clay with ~10% gravel to 15 mm and ~20% medium to fine sand. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (73.5 - 74.5)</b> Saturated, dense, no odor. Primarily coarse sand with ~15% gravel to 25 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand with Gravel (74.5 - 76)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~25% gravel to 25 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		GC	<b>Clayey Gravel with Sand (76 - 78)</b> Moist to saturated, dense, no odor. Primarily gravel to 40 mm with ~30% medium to fine sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand with Gravel (78 - 79)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
80		SC	<b>Clayey Sand with Gravel (79 - 81)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and 20-25% silt and clay. The sand and gravel are angular to subangular. The fines have low to medium plasticity and toughness, and do not react to HCl.					
		GC	<b>Clayey Gravel with Sand (81 - 91)</b> Moist, very dense, no odor. Primarily gravel to 120 mm with ~25% medium to fine sand and 25-30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity and toughness, and do not react to HCl. Cobbles located throughout zone and gravel content is greater than 60% below 83 feet.					
85								
90								

Bottom of Borehole at 91 feet below ground surface.



**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-22  
Construction Details**

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 1 of 11

<b>Boring Location:</b> One mile south of the junction of Luzier Lane and Locust Lane		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> D. Reed	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 7/14/07	<b>Date Finished:</b> 7/18/07
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 197 fbg	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> R. Banda and C. Strauss		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SM	<b>Silty Sand (0 - 5.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have a light brown color, and have a weak reaction to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
		SW-SM	<b>Well-Graded Sand with Silt (5.5 - 9.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
		CL	<b>Sandy Lean Clay (9.5 - 11)</b> Dry, dense, no odor. Primarily silt and clay with ~5% gravel to 10 mm and ~30% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a strong reaction to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		SM	<b>Silty Sand (11 - 14)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					All depths are below land surface unless stated otherwise.
		SM	<b>Silty Sand with Gravel (14 - 16)</b> Dry, loose, no odor. Primarily medium to fine sand with ~35% gravel to 30 mm and ~20% fine grained					WELL DESIGN for B/W-22: PVC Stickup: feet. Cement - Bentonite Grout: 0 - 166 feet Bentonite Chips: 166 - 171 feet No. 60 Silica Sand: 171 - 172 feet #10-20 Silica Sand Filter Pack: 172 - 195 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 175 - 195 feet Native Collapse: 195 - 197 feet Additional Bentonite Fill: NA feet
								Number of wells at this location: 1 Screen intervals for paired wells are labeled at the installed depths.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 2 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			sand. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (16 - 22.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a reddish brown color, and have a strong reaction to HCl.					
20								
		SM	<b>Silty Sand with Gravel (22.5 - 23)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a brown color, and have a strong reaction to HCl.					
		SW						
25								
		SW-SM	<b>Well-Graded Sand (23 - 25)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a brown color, and have no reaction to a weak reaction to HCl.					
			<b>Well-Graded Sand with Silt and Gravel (25 - 27.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 50 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have a reddish brown color, and do not react to HCl.					
		SW-SM	<b>Volcanic Tuff (27.5 - 28)</b> Dry, dense, no odor. The fines are nonplastic, and have a strong reaction to HCl.					
			<b>Well-Graded Sand with Silt and Gravel (28 - 33.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
30								
		SM	<b>Silty Sand (33.5 - 37)</b>					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 3 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35			Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand with Gravel (37 - 43)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
40								
		CL	<b>Sandy Lean Clay with Gravel (43 - 45)</b> Dry, dense, no odor. Primarily silt and clay with ~15% gravel to 15 mm and ~30% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak to strong reaction to HCl.					
45								
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (45 - 50.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
50								
		SM	<b>Silty Sand (50.5 - 52)</b> Dry to moist, dense, no odor. Primarily silt and clay with ~5% gravel to 15 mm and ~40% medium to fine grained sand. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (52 - 58)</b> Dry, very dense, no odor. Primarily medium to fine					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 4 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55			sand with ~15% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt (58 - 60)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
60		SW-SM	<b>Well-Graded Sand with Silt (60 - 63)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (63 - 66)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
65		SM	<b>Silty Sand (66 - 68.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (68.5 - 73)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
70								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 5 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75		SM	<b>Silty Sand (73 - 74)</b> Dry, very dense, no odor. Primarily silt and clay with ~5% gravel to 20 mm and ~30% medium to fine sand. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand with Gravel (74 - 82.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~20% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
80								
		SM	<b>Silty Sand (82.5 - 84)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
85		SM	<b>Silty Sand with Gravel (84 - 86.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~20% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (86.5 - 88)</b> Dry, very dense, no odor. Primarily silt and clay with ~10% gravel to 15 mm and ~30% medium to fine grained sand. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt (88 - 89.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 30 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
90		SM	<b>Silty Sand (89.5 - 91)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 6 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95		SW	clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
			<b>Well-Graded Sand (91 - 93.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and 10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.					
		SM	<b>Silty Sand (93.5 - 96)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand with Gravel (96 - 97)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 20 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
100		SW						
			<b>Well-Graded Sand with Gravel (97 - 106)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
105								
110		SM	<b>Silty Sand (106 - 107.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a weak to strong reaction to HCl.					
		SM	<b>Silty Sand (107.5 - 109)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SM						
			<b>Silty Sand (109 - 111)</b>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 7 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115		SW	<p>Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a weak to strong reaction to HCl.</p> <p><b>Well-Graded Sand with Gravel (111 - 114.5)</b>            Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.</p>					
		CL	<p><b>Gravelly Lean Clay (114.5 - 116)</b>            Dry, very dense, no odor. Primarily silt and clay with ~20% gravel to 25 mm and ~20% coarse to fine grained sand. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a weak to strong reaction to HCl.</p>					
		SW	<p><b>Well-Graded Sand with Gravel (116 - 118)</b>            Dry to moist, dense, no odor. Primarily medium to fine sand with ~25% gravel to 25 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.</p>					
120		SM	<p><b>Silty Sand (118 - 119)</b>            Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.</p>					
		SW-SM	<p><b>Well-Graded Sand with Silt (119 - 121)</b>            Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a weak reaction to HCl.</p>					
		SC	<p><b>Clayey Sand (121 - 122)</b>            Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>					
125		SW	<p><b>Well-Graded Sand (122 - 124.5)</b>            Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
		SW	<p><b>Well-Graded Sand with Gravel (124.5 - 125.5)</b>            Dry to moist, dense, no odor. Primarily medium to fine sand with ~30% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.</p>					
		CL	<p><b>Sandy Lean Clay with Gravel (125.5 - 127)</b>            Dry to moist, very dense, no odor. Primarily silt and clay with ~25% gravel to 15 mm and ~20% medium to fine grained sand. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>					
		SM	<p><b>Silty Sand (127 - 131)</b>            Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and</p>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 8 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130			clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (131 - 132)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (132 - 139.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 20 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
135								
		SW	<b>Well-Graded Sand (139.5 - 144)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
140								
		SW-SM	<b>Well-Graded Sand with Silt (144 - 146.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
145								
		SM	<b>Silty Sand (146.5 - 149)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~40% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 9 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150		CL	<b>Sandy Lean Clay (149 - 150)</b> Dry, very dense, no odor. Primarily silt and clay with ~10% gravel to 10 mm and ~20% medium to fine grained sand. The gravel is angular to subangular and the sand is subangular to subrounded. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (150 - 152)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		CL	<b>Sandy Lean Clay (152 - 155.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~10% gravel to 10 mm and ~25% medium to fine grained sand. The gravel is angular to subangular and the sand is subangular to subrounded. The fines have low to medium plasticity with low toughness, and have a strong reaction to HCl.					
155		SW-SM	<b>Well-Graded Sand with Silt and Gravel (155.5 - 156)</b> Saturated, dense, no odor. Primarily coarse to fine sand with ~20% gravel to 10 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
		SM	<b>Silty Sand with Gravel (156 - 159.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
160		CL	<b>Sandy Lean Clay (159.5 - 160)</b> Dry, very dense, no odor. Primarily silt and clay with ~5% gravel to 25 mm and ~10% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (160 - 162)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~30% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (162 - 180)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 15 mm and ~30% coarse to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
165								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 10 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170								
175								
180		CL	<b>Sandy Lean Clay (180 - 187)</b> Moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 15 mm and ~25% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity with low toughness, and have a weak reaction to HCl.					
185								



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


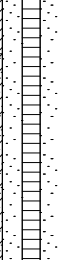






Soil Boring: ☐

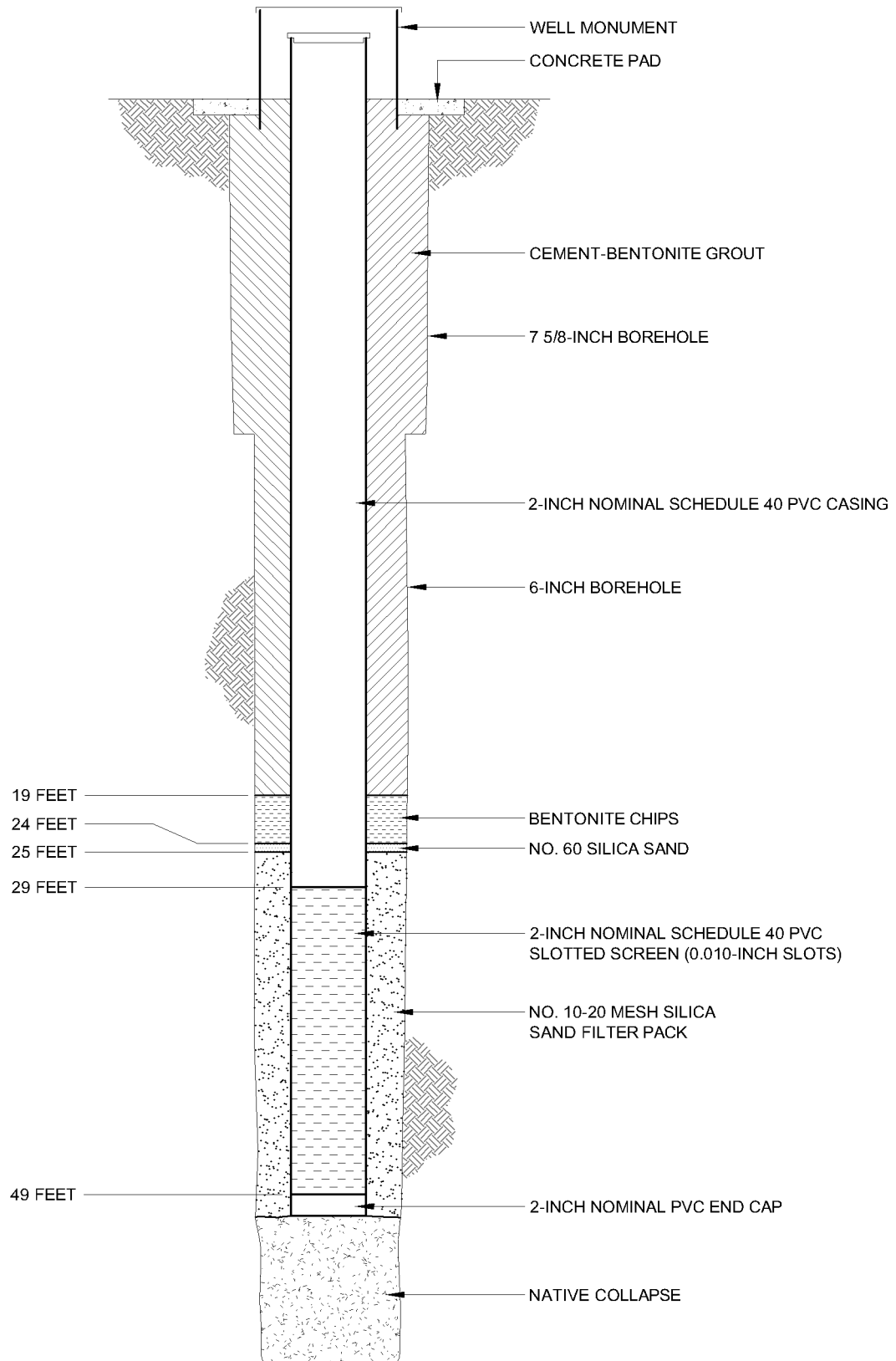
Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-22

Sheet 11 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
190		SC	<b>Clayey Sand (187 - 189.5)</b> Moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 35 mm and 25% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (189.5 - 190)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (190 - 194.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~10% gravel to 20 mm and ~20% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (194.5 - 197)</b> Dry, very dense, no odor. Primarily silt and clay with ~5% gravel to 20 mm and ~25% coarse to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity with low toughness, and do not react to HCl.					
195			Bottom of Borehole at 197 feet below ground surface.					



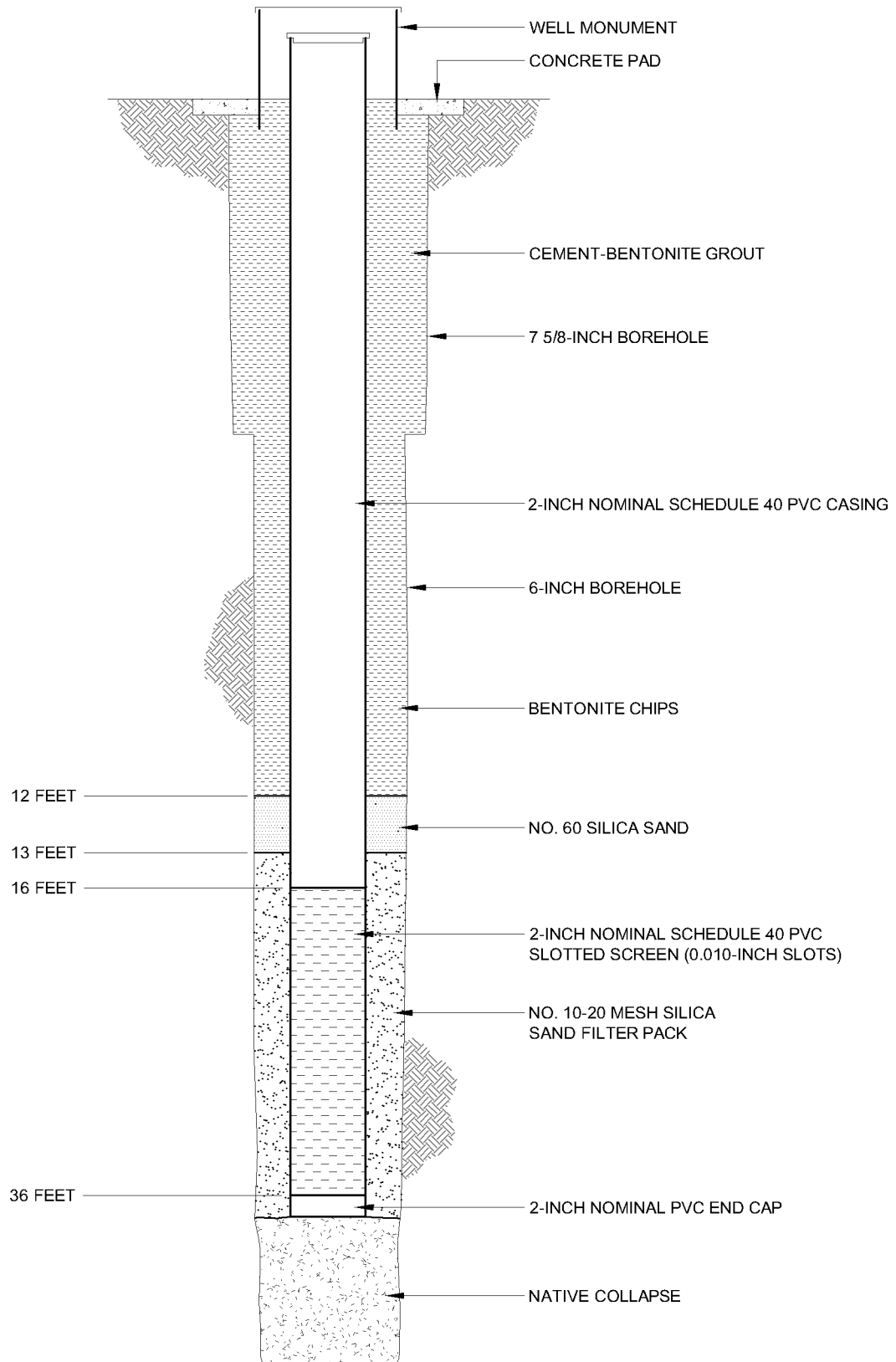
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-25S  
Construction Details**



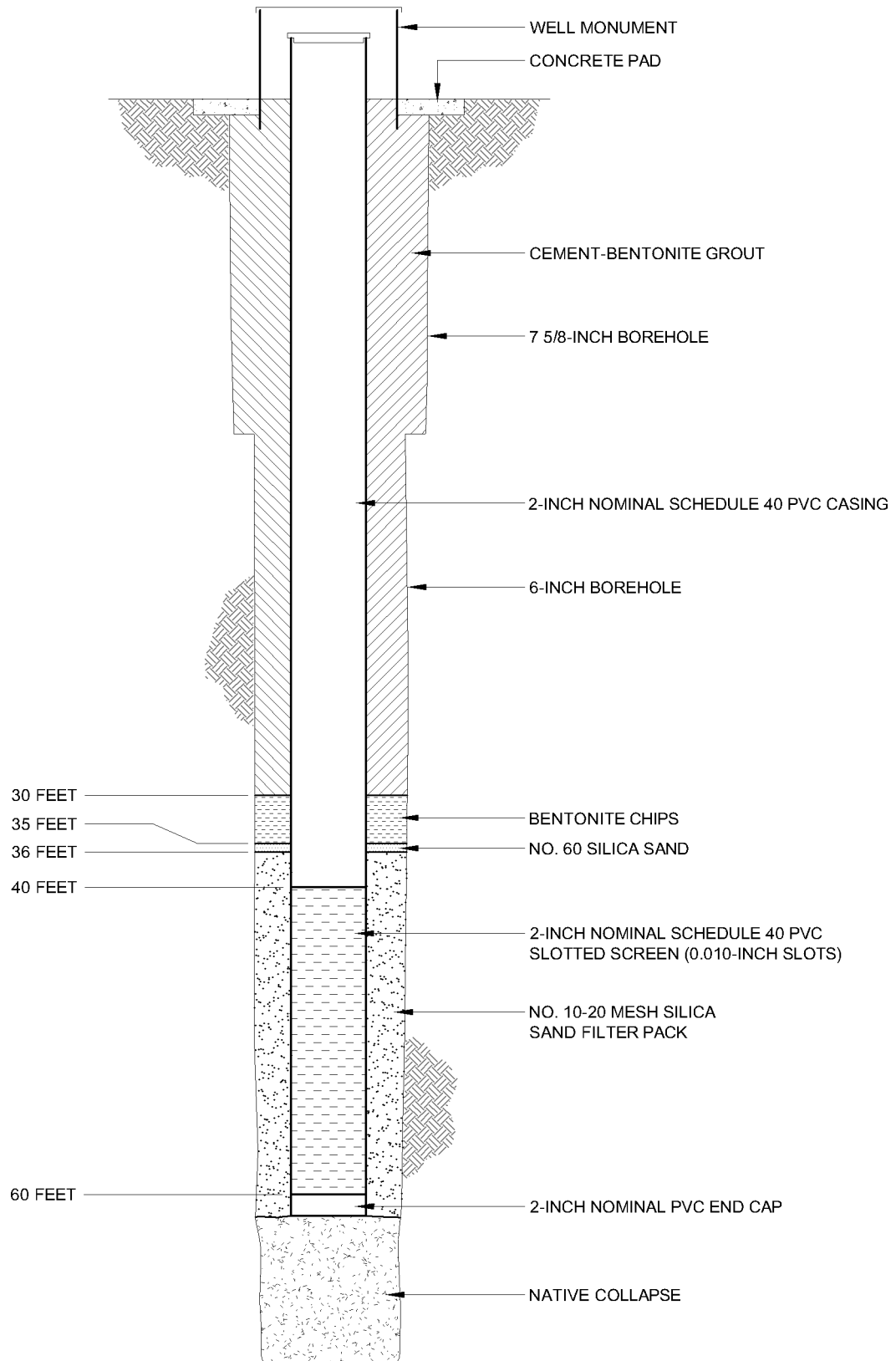
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-27S  
Construction Details**



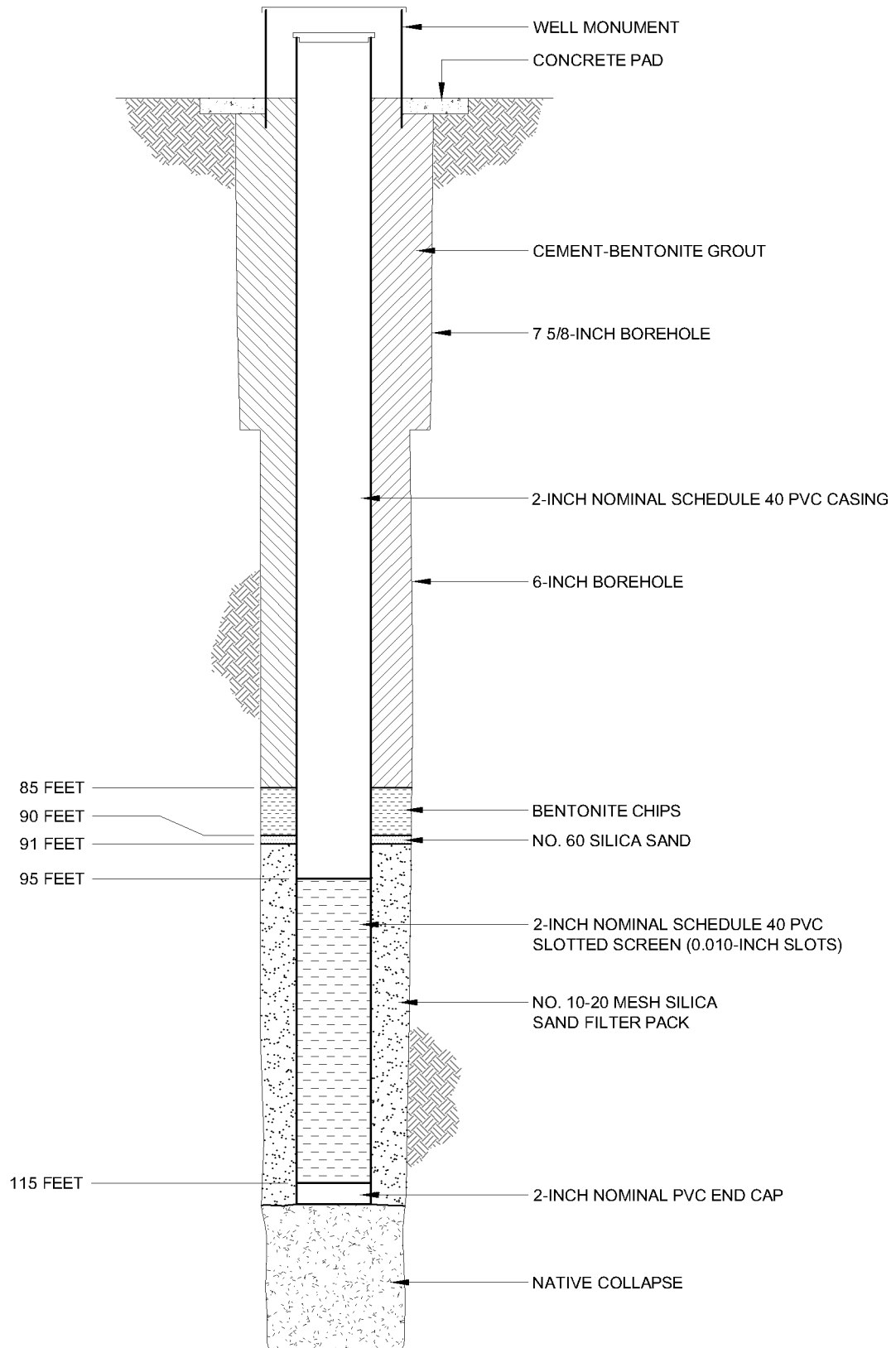
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-28S  
Construction Details**



NOT TO SCALE

**BROWN AND  
CALDWELL**

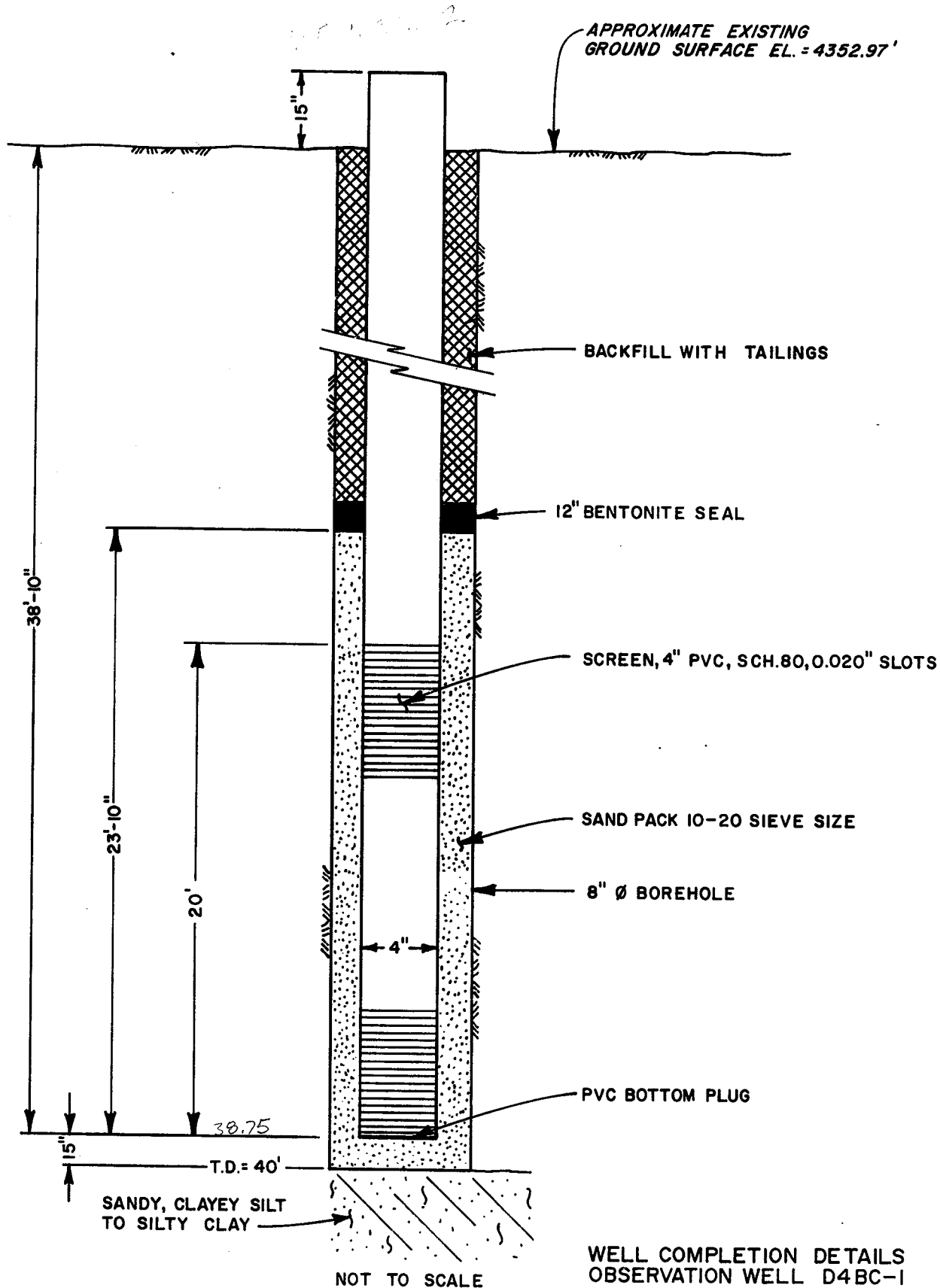
Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-29S  
Construction Details**

DRAWN BY	F.R. Downey	CHECKED BY	DRAWING RM84-112-A15	
			NUMBER	
BY	11-5-85	APPROVED BY		



WELL COMPLETION DETAILS  
OBSERVATION WELL D4 BC-1  
PREPARED FOR  
ANACONDA MINERALS COMPANY  
DENVER, COLORADO

DATE: 11-5-85	FIGURE	DWG. NO. RM84-112-A15
SCALE: N.T.S.		

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-1S

Sheet 1 of 3

Boring Location: On Site, east of Pumpback Well System		Northing: 1556459.6	Easting: 320601.7
Drilling Contractor: Cascade Drilling Inc.		Top of PVC Elevation: 4368.5 feet amsl	Ground Surface Elevation: 4366 feet amsl
Drilling Equipment: CS 500 Sonic Drill Rig		Date Started: 2/26/09	Date Finished: 2/27/09
Drilling Method: Sonic, utilized 4" core barrel		Completed Depth: 66 fbgs	Water Depth: 39.63 fbmp
Sampling Method: NA	Driller: R. LaBrosse Sr.	WELL CONSTRUCTION	
Well Seal: NA	Borehole Diameter: 6	Type and Diameter of Well Casing: 2-inch Schedule 40 PVC	
Logged By: C. Strauss	Drilling Fluid: NA	Slot Size: 0.020	Filter Material: #10-20 Silica Sand

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4365			No Recovery (0 - 6) No sample due to vacuum truck removal.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5								Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.
4360		SM	Silty Sand (6 - 15) Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have the 2.5YR 4/6 coloring, and do not react to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
10								All depths are below land surface unless stated otherwise.
4355								WELL DESIGN for LEP-MW-1S: PVC Stickup: 2.50 feet Cement - Bentonite Grout: 0 - 30 feet Bentonite Chips: 30 - 33 feet #10-20 Silica Sand Filter Pack: 33 - 48 feet 2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 35 - 45 feet Additional Bentonite Fill: 48 - 66 feet
15		SP-SM	Poorly Graded Sand with Silt (15 - 15.5) Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4350		SM						
		SP-SM	Silty Sand (15.5 - 17) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have the 2.5YR 4/4 coloring, and do not react to HCl.					
		SC	Poorly Graded Sand with Silt and Gravel (17 - 19) Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are					

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Name: LEP-MW-1S

Sheet 2 of 3

Depth (ft)	Elevation (fmsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4345		SP	nonplastic, and do not react to HCl. <b>Clayey Sand (19 - 21)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SC	<b>Poorly Graded Sand (21 - 24)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. <b>Clayey Sand (24 - 27.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 5 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have the 2.5YR 4/6 coloring, and do not react to HCl.					
25	4340	SP	<b>Poorly Graded Sand (27.5 - 29)</b> Dry to moist, loose, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (29 - 32)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
30	4335	SC	<b>Clayey Sand (32 - 37)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low to medium plasticity and toughness, have a 5YR 3/4 coloring, and do not react to HCl.					
35	4330	SC	<b>Clayey Sand (37 - 38)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (38 - 40.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
40	4325	SM	<b>Silty Sand (40.5 - 44)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.					
45		SP	<b>Poorly Graded Sand (44 - 46.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The					

LEP-MW-1S screened from 35 - 45 ft bgs



# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-1S

Sheet 3 of 3

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
	4320		finer are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (46.5 - 49)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.					
		SP-SM	<b>Poorly Graded Sand with Silt (49 - 50)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 3/4 coloring, and do not react to HCl.					
50		SM	<b>Silty Sand (50 - 53)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have the 5YR 3/4 coloring, and have no reaction to a weak reaction to HCl.					
	4315							
		SC	<b>Clayey Sand (53 - 60)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low to medium plasticity and toughness, and do not react to HCl.					
55								
	4310							
		CL	<b>Sandy Lean Clay (60 - 62)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have moderate to high plasticity, have the 5YR 4/4 coloring, and do not react to HCl.					
60								
	4305							
		SC	<b>Clayey Sand (62 - 66)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, have the 2.5YR 4/4 coloring, and do not react to HCl.					
65								
	4300							
			Bottom of Borehole at 66 feet below ground surface.					
70								

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-2S

Sheet 1 of 3

Boring Location: On Site, east of Pumpback Well System	Northing: 1556953.7	Easting: 320602.8
Drilling Contractor: Cascade Drilling Inc.	Top of PVC Elevation: 4362.4 feet amsl	Ground Surface Elevation: 4360.5 feet amsl
Drilling Equipment: CS 500 Sonic Drill Rig	Date Started: 2/27/09	Date Finished: 2/27/09
Drilling Method: Sonic, utilized 4" core barrel	Completed Depth: 58 fbgss	Water Depth: 33.69 fbmp
Sampling Method: NA	Driller: R. LaBrosse Sr.	WELL CONSTRUCTION
Well Seal: NA	Borehole Diameter: 6	Type and Diameter of Well Casing: 2-inch Schedule 40 PVC
Logged By: C. Strauss	Drilling Fluid: NA	Slot Size: 0.020
		Filter Material: #10-20 Silica Sand

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4360			No Recovery (0 - 6) Core not recovered due to vacuum truck removal.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5								Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.
4355		SM	Silty Sand (6 - 9) Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
10		SM	Silty Sand (9 - 12) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines have low plasticity, have the 5YR coloring, and do not react to HCl.					All depths are below land surface unless stated otherwise.
4350		SP	Poorly Graded Sand (12 - 13) Dry to moist, loose to dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					WELL DESIGN for LEP-MW-2S: PVC Stickup: 1.90 feet. Cement - Bentonite Grout: 0 - 24 feet Bentonite Chips: 24 - 27 feet #10-20 Silica Sand Filter Pack: 27 - 41 feet 2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 29 - 39 feet Additional Bentonite Fill: 41 - 58 feet
15		SM	Silty Sand (13 - 14.5) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity, and do not react to HCl.					
4345		SW	Well Graded Sand (14.5 - 18) Moist, loose, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
			No Recovery (18 - 20)					

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-2S

Sheet 2 of 3

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
25	4340	SC	<b>Clayey Sand (20 - 22)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (22 - 23)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity, have the 5YR 4/3 coloring, and have no reaction to a weak reaction to HCl.					
		SM	<b>Silty Sand (23 - 27)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
30	4335	SM	<b>Silty Sand (27 - 32)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a weak reaction to HCl.					
		SP	<b>Poorly Graded Sand (32 - 33.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 2 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
		SW	<b>Well Graded Sand (33.5 - 35.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
35	4325	SM	<b>Silty Sand (35.5 - 40)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/3 coloring, and have a weak to strong reaction to HCl.					
40	4320	SW	<b>Well Graded Sand (40 - 41)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (41 - 45)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
45								

LEP-MW-2S screened from 29 - 39 ft bgs

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-2S

Sheet **3** of **3**

Depth (ft)	Elevation (fmsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4315		SP	<b>Poorly Graded Sand (45 - 50)</b> Saturated, dense, no odor. Primarily medium to fine sand with more medium grained sand than fine grained sand, ~10% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a weak reaction to HCl.					
50	4310	SM	<b>Silty Sand (50 - 55)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
55	4305	CL	<b>Sandy Lean Clay (55 - 58)</b> Moist, very dense, no odor. Zone has a 5YR 3/4 coloring.					
60	4300		Bottom of Borehole at 58 feet below ground surface.					
65	4295							
70	4290							

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-3S

Sheet 1 of 3

<b>Boring Location:</b> On Site, north of Pumpback Well System		<b>Northing:</b> 1557192	<b>Easting:</b> 321277.7
<b>Drilling Contractor:</b> Cascade Drilling Inc.		<b>Top of PVC Elevation:</b> 4354.6 feet amsl	
<b>Drilling Equipment:</b> CS 500 Sonic Drill Rig		<b>Ground Surface Elevation:</b> 4352.6 feet amsl	
<b>Drilling Method:</b> Sonic, utilized 4" core barrel		<b>Date Started:</b> 2/28/09	<b>Date Finished:</b> 2/28/09
<b>Sampling Method:</b> NA		<b>Completed Depth:</b> 52 fbgs	<b>Water Depth:</b> 25.95 fbmp
<b>Driller:</b> R. LaBrosse Sr.		<b>WELL CONSTRUCTION</b>	
<b>Well Seal:</b> NA		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC	
<b>Logged By:</b> C. Strauss		<b>Slot Size:</b> 0.020	<b>Filter Material:</b> #10-20 Silica Sand
<b>Borehole Diameter:</b> 6		<b>Drilling Fluid:</b> NA	

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			<b>No Recovery (0 - 6)</b> No Recovery due to vacuum truck removal.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5	4350							Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.
		SM	<b>Silty Sand (6 - 9)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 2.5YR 3/3 coloring, and have a weak reaction to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
10	4345	SP	<b>Poorly Graded Sand (9 - 10)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					All depths are below land surface unless stated otherwise.
		SM	<b>Silty Sand (10 - 12)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a weak to strong reaction to HCl.					WELL DESIGN for LEP-MW-3S: PVC Stickup: 2.00 feet Cement - Bentonite Grout: 0 - 14 feet Bentonite Chips: 14 - 17 feet #10-20 Silica Sand Filter Pack: 17 - 31 feet 2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 19 - 29 feet Additional Bentonite Fill: 31 - 52 feet
15	4340	SM	<b>Silty Sand (12 - 15)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 2.5YR 3/4 coloring, and have a weak to strong reaction to HCl.					
		SM	<b>Silty Sand (15 - 18)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 2.5YR 3/3 coloring, and do not react to HCl.					
	4335		<b>No Recovery (18 - 22)</b>					
								LEP-MW-3S screened from 19 - 29 ft bgs

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-3S

Sheet 2 of 3

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4330		SM	<b>Silty Sand (22 - 24.5)</b> Moist, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to high plasticity and weak toughness, have the 5YR 4/4 coloring, and do not react to HCl. More clay content from 24 - 24.5 ft bgs.					
25		SC	<b>Clayey Sand (24.5 - 26)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 3/3 coloring, and do not react to HCl.					
		SW	<b>Well Graded Sand (26 - 27)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4325		SM	<b>Silty Sand (27 - 27.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity, have the 5YR 4/3 coloring, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (27.5 - 31.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
30		SM	<b>Silty Sand (31.5 - 36)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4320		SP	<b>Poorly Graded Sand (36 - 42)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
35		SC	<b>Clayey Sand (42 - 48)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 3/4 coloring, and do not react to HCl.					
4310								
45								



# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well: ☒

Piezometer ☐

Boring/Well Name: LEP-MW-3S

Sheet 3 of 3

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4305								
50		SW	Well Graded Sand with Gravel (48 - 52) Saturated, dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4300			Bottom of Borehole at 52 feet below ground surface.					
55								
4295								
60								
4290								
65								
4285								
70								

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐ Monitoring Well ☒ Piezometer ☐

Boring/Well Name: LEP-MW-5S

Sheet 1 of 2

<b>Boring Location:</b> On Site, north of Pumpback Well System	<b>Northing:</b> 1557202	<b>Easting:</b> 322061.3
<b>Drilling Contractor:</b> Cascade Drilling Inc.	<b>Top of PVC Elevation:</b> 4353.6 feet amsl	<b>Ground Surface Elevation:</b> 4351.3 feet amsl
<b>Drilling Equipment:</b> CS 500 Sonic Drill Rig	<b>Date Started:</b> 3/2/09	<b>Date Finished:</b> 3/2/09
<b>Drilling Method:</b> Sonic, utilized 4" core barrel	<b>Completed Depth:</b> 37 fbg	<b>Water Depth:</b> 23.06 fbg
<b>Sampling Method:</b> NA	<b>WELL CONSTRUCTION</b>	
<b>Driller:</b> R. LaBrosse Sr.	<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC	
<b>Well Seal:</b> NA	<b>Slot Size:</b> 0.020	<b>Filter Material:</b> #3 Silica Sand
<b>Borehole Diameter:</b> 6		
<b>Logged By:</b> C. Strauss	<b>Drilling Fluid:</b> NA	

Depth (ft)	Elevation (fmsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4350			<b>No Recovery (0 - 9)</b> No recovery due to vacuum truck removal.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5								Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.
4345								Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
10		SW	<b>Well Graded Sand (9 - 11)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Iron staining present.					All depths are below land surface unless stated otherwise.
4340		CL	<b>Sandy Lean Clay (11 - 13)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~45% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity, have the 5YR 4/4 coloring, and do not react to HCl.					<b>WELL DESIGN for LEP-MW-5S:</b> PVC Stickup: 2.30 feet Cement - Bentonite Grout: 0 - 10 feet Bentonite Chips: 10 - 13 feet #3 Silica Sand Filter Pack: 13 - 27 feet 2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 15 - 25 feet Additional Bentonite Fill: 27 - 37 feet
15		SM	<b>Silty Sand (13 - 17)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4335		SC	<b>Clayey Sand with Gravel (17 - 18)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (18 - 22)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and					

LEP-MW-5S screened from 15 - 25 ft bgs



# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003


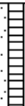
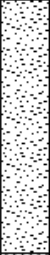


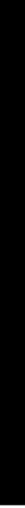
Soil Boring ☐

Monitoring Well: ☒

Piezometer ☐

Boring/Well Name: LEP-MW-5S

Sheet 2 of 2

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4330			clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and have the 5YR 4/4 coloring.					
25		SP	<b>Poorly Graded Sand (22 - 27)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
30		CL	<b>Lean Clay (27 - 37)</b> Moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~35% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity and toughness, have the 5YR 4/4 coloring, and do not react to HCl.					
40			Bottom of Borehole at 37 feet below ground surface.					
45								

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Name: LEP-MW-6S

Sheet 1 of 3

<b>Boring Location:</b> On Site, north of Pumpback Well System		<b>Northing:</b> 1557219.1	<b>Easting:</b> 323330.3
<b>Drilling Contractor:</b> Cascade Drilling Inc.		<b>Top of PVC Elevation:</b> 4354.6 feet amsl	
<b>Drilling Equipment:</b> CS 500 Sonic Drill Rig		<b>Ground Surface Elevation:</b> 4352.3 feet amsl	
<b>Drilling Method:</b> Sonic, utilized 4" core barrel		<b>Date Started:</b> 3/2/09	<b>Date Finished:</b> 3/2/09
<b>Sampling Method:</b> NA		<b>Completed Depth:</b> 51 fbg	<b>Water Depth:</b> 20.75 fbg
<b>Driller:</b> R. LaBrosse Sr.		<b>WELL CONSTRUCTION</b>	
<b>Well Seal:</b> NA		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC	
<b>Borehole Diameter:</b> 6		<b>Slot Size:</b> 0.020	
<b>Logged By:</b> C. Strauss		<b>Filter Material:</b> #3 Silica Sand	
<b>Drilling Fluid:</b> NA			

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4350			<b>No Recovery (0 - 7)</b> No recovery due to vacuum truck removal.					<p>Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.</p> <p>Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.</p> <p>Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.</p> <p>All depths are below land surface unless stated otherwise.</p> <p><b>WELL DESIGN for LEP-MW-6S:</b>  PVC Stickup: 2.30 feet  Cement - Bentonite Grout: 0 - 19 feet  Bentonite Chips: 19 - 22 feet  #3 Silica Sand Filter Pack: 22 - 37 feet  2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 25 - 35 feet  Additional Bentonite Fill: 37 - 51 feet</p>
5		SM	<b>Silty Sand (7 - 9)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
10		SP	<b>Poorly Graded Sand (9 - 13)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Fine grained.					
15		SM	<b>Silty Sand (13 - 14)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, have the 5YR 5/4 coloring, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (14 - 19)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.					
4335								
		SP	<b>Poorly Graded Sand (19 - 22.5)</b> Moist to saturated, dense, no odor. Primarily medium to					

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Name: LEP-MW-6S

Sheet 2 of 3

Depth (ft)	Elevation (ftmsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4330		SW	<b>Well Graded Sand (22.5 - 24)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
25		SC	<b>Clayey Sand (24 - 28)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl. Section has 5YR 4/4 color with 5YR 3/3 banding.					LEP-MW-6S screened from 25 - 35 ft bgs
4325								
		SW	<b>Well Graded Sand (28 - 36)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~5% silt and clay. The gravel is subangular to subrounded and the sand is subangular to rounded. The fines are nonplastic, and do not react to HCl.					
30								
4320								
35								
4315		SM	<b>Silty Sand (36 - 46)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, have the 5YR 5/4 coloring, and do not react to HCl. Starting to acquire more clay content towards 44 ft bgs.					
40								
4310								
45								

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003





Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-6S

Sheet **3** of **3**

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4305		SC	<b>Clayey Sand (46 - 49)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, have the 5YR 4/4 coloring, and do not react to HCl.					
50		CL	<b>Sandy Lean Clay (49 - 51)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have high plasticity, have the 5YR 4/4 coloring, and do not react to HCl.  Bottom of Borehole at 51 feet below ground surface.					
4300								
55								
4295								
60								
4290								
65								
4285								
70								

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-7S

Sheet 1 of 2

Boring Location: On Site, north of Pumpback Well System		Northing: 1557221.6	Easting: 323917.8
Drilling Contractor: Cascade Drilling Inc.		Top of PVC Elevation: 4354.1 feet amsl	
Drilling Equipment: CS 500 Sonic Drill Rig		Ground Surface Elevation: 4351.9 feet amsl	
Drilling Method: Sonic, utilized 4" core barrel		Date Started: 3/2/09	Date Finished: 3/3/09
Sampling Method: NA		Completed Depth: 38 fbgs	Water Depth: 19.94 fbmp
Driller: R. LaBrosse Sr.		WELL CONSTRUCTION	
Well Seal: NA		Type and Diameter of Well Casing: 2-inch Schedule 40 PVC	
Borehole Diameter: 6		Slot Size: 0.020	
Logged By: C. Strauss		Filter Material: #3 Silica Sand	
Drilling Fluid: NA			

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			No Recovery (0 - 6) No Recovery due to vacuum truck removal.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5								Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.
	4345	SP	Poorly Graded Sand with Silt (6 - 14) Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 5/3 coloring, and do not react to HCl. Rusty colored (5YR 5/8) sand toward 6 ft bgs.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
10								All depths are below land surface unless stated otherwise.
	4340							WELL DESIGN for LEP-MW-7S: PVC Stickup: 2.20 feet Cement - Bentonite Grout: 0 - 5 feet Bentonite Chips: 5 - 7 feet #3 Silica Sand Filter Pack: 7 - 21 feet 2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 9 - 19 feet Additional Bentonite Fill: 21 - 38 feet
15		SC	Clayey Sand (14 - 15) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 5/4 coloring, and do not react to HCl.					
		SP	Poorly Graded Sand (15 - 17) Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
	4335	SM	Silty Sand (17 - 18) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM						

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well: ☒

Piezometer ☐

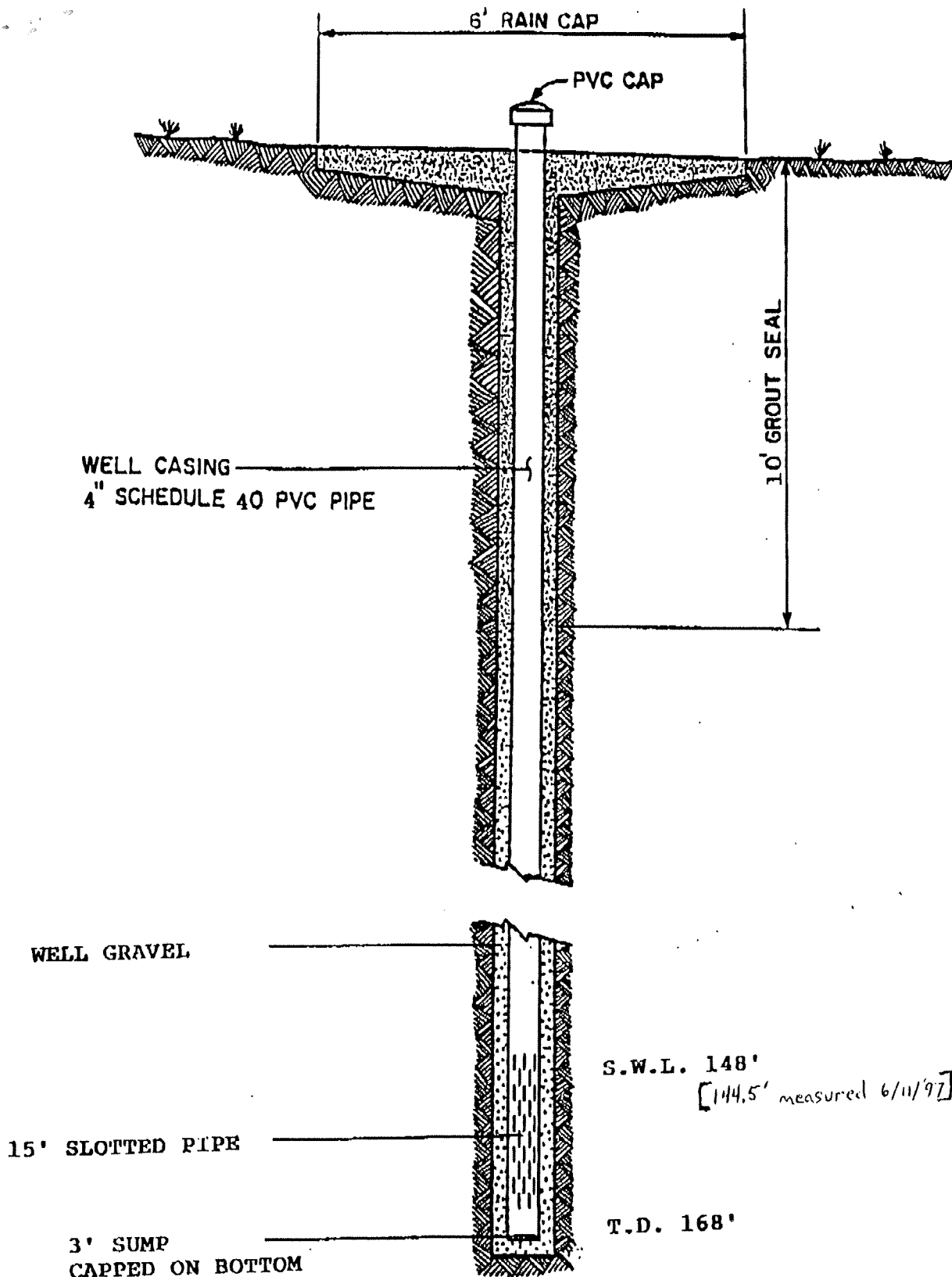
Boring/Well Name: LEP-MW-7S

Sheet 2 of 2

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4330		SC	<b>Silty Sand (18 - 20)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have the 5YR 5/4 coloring.					
25		SC	<b>Clayey Sand (20 - 22.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic. <b>Clayey Sand (22.5 - 27)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15-20% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have the 5YR 5/4 coloring. Small clay rich lenses with high plasticity, 5YR 4/4.					
4325		CL	<b>Sandy Lean Clay (27 - 30)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have moderate to high plasticity. Section has 5YR 5/3 color with frequent spots of strong iron (5YR 4/8) staining.					
30		SM	<b>Silty Sand (30 - 32.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have the 5YR 5/4 coloring.					
4320		SW	<b>Well Graded Sand (32.5 - 34)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
35		SP-SM	<b>Silty Sand (34 - 38)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 5 mm and ~15-20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl. Section has 5YR 4/4 coloring with bands of iron staining throughout (5YR 4/8).					
4315								
40			Bottom of Borehole at 38 feet below ground surface.					
4310								
45								







# MONITOR WELL MW-1

ARIMETCO, INC.

YERINGTON, NV.

Figure 12





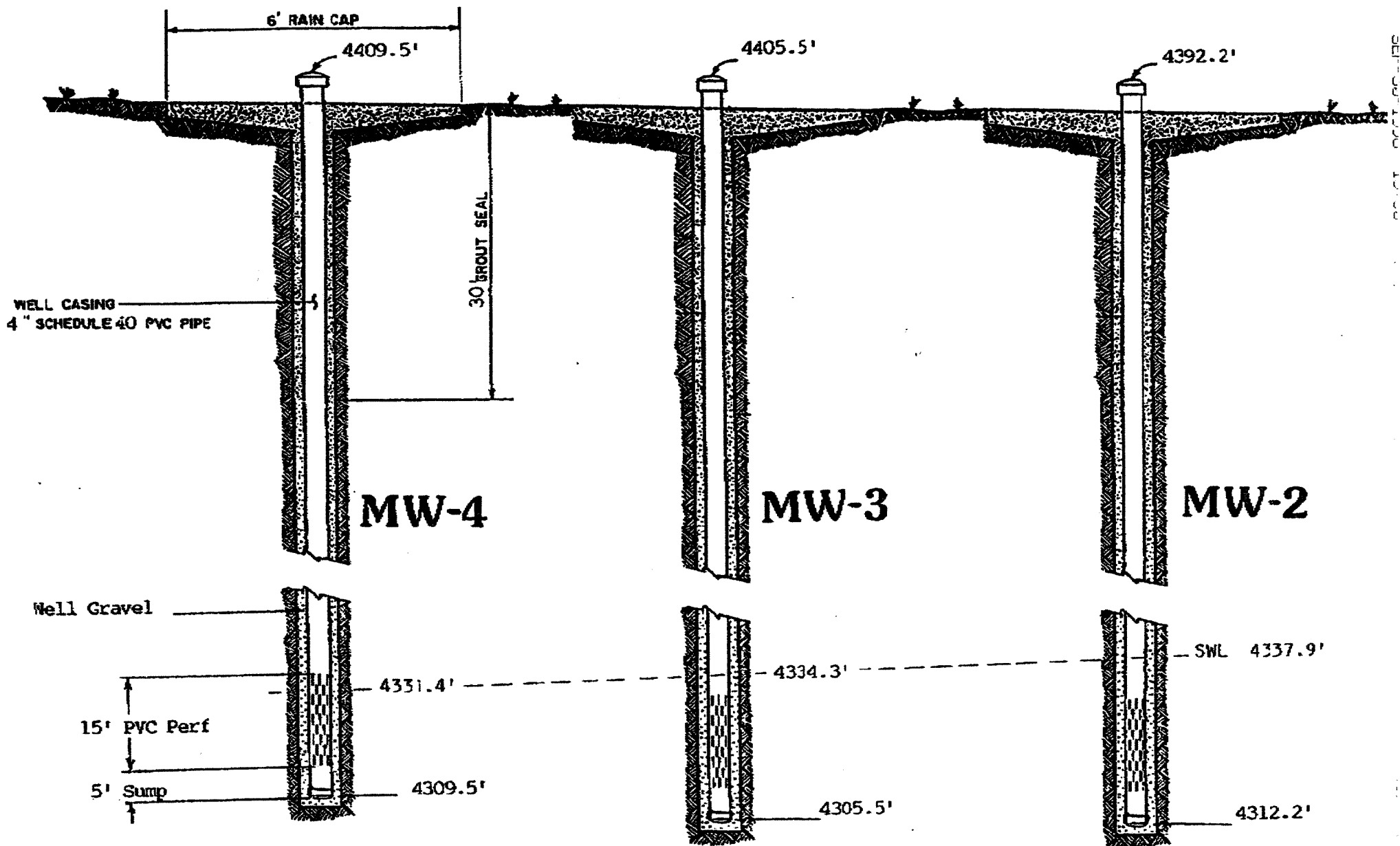


Figure 9. VLT Monitor Well Schematics (not to scale)

NOTICE OF INTENT NO. 26046

MINE Location

County

Subdivision Name

4.

**PROPOSED USE**

### 5. WELL TYPE

☐ Domestic  
☐ Municipal/Industrial

<input type="checkbox"/> Irrigation	<input type="checkbox"/> Test
<input checked="" type="checkbox"/> Monitor	<input type="checkbox"/> Stock

☐ Cable    ☐ Rotary    ☐ RVC  
☒ Air    ☐ Other

6. LITHOLOGIC LOG

## 8. WELL CONSTRUCTION

Depth Drilled\_\_\_\_\_Feet      Depth Cased\_\_\_\_\_Feet

HOLE DIAMETER (BIT SIZE)

	Gravel			Mass
MINE Fill		0	20'	20
Silt		20	23'	3
Sand & Gravel	✓	73	105'	47'

	From	To
8" Inches	0 Feet	65 Feet
Inches	Feet	Feet
Inches	Feet	Feet

### CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
4 1/2	PVC	sch 40	+ 2	65'

**Perforations:**

Type perforation.....factory

Size perforation, 0.25000

From 50'	feet to 65'	feet
From	feet to	feet
From	feet to	feet
From	feet to	feet
From	feet to	feet

**Surface Seal:** ☒ Yes ☐ No

Depth of Seal 50'

Placement Method: ☐ Pumped  
☒ Poured

**Seal Type:**

## Neat Cement

**Cement Grout**

☐ **Concrete Grout**

Gravel Packed: ☒ Yes ☐ No

From 50' feet to 65' feet

### 9. WATER LEVEL

Static water level, 57' feet below land surface

Artesian flow.....G.P.M.....P.S.I.

Water temperature.....°F      Quality Turbid

## 10. DRILLER'S CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Leuch Vuthara Me

Contractor  
Address P.O. Box 599  
Contractor  
Silver Spring Md. 89429

Nevada contractor's license number  
issued by the State Contractor's Board. 0031841

Nevada driller's license number issued by the  
Division of Water Resources, the on-site driller 1740

Signed Mathias L. Leach  
By driller performing actual drilling on site or contractor

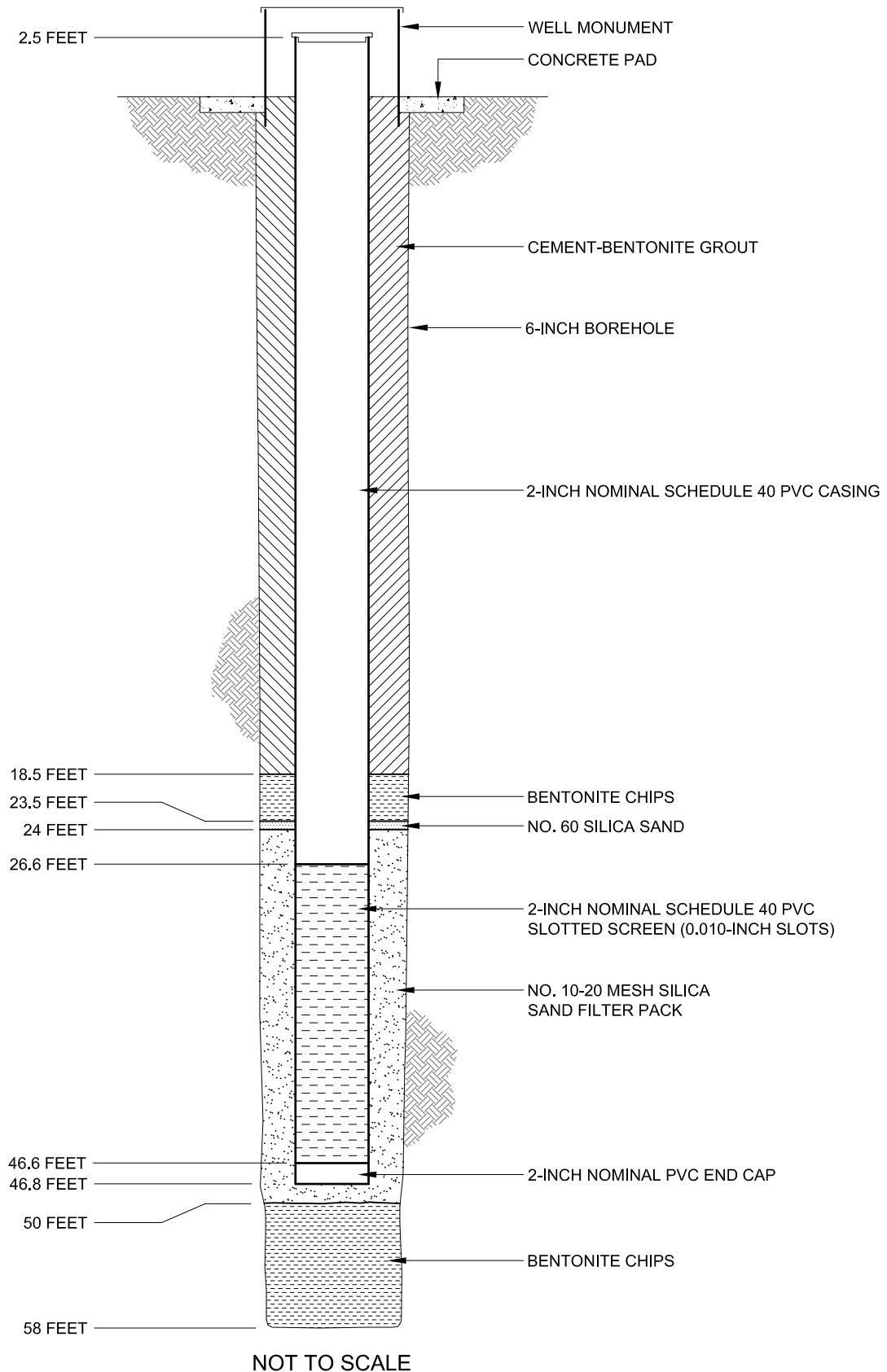
Date Nov. 19/95

Date started Oct 20, 1991  
Date completed Oct 20, 1991

7. WELL TEST DATA

TEST METHOD: ☐ Bailer ☐ Pump ☒ Air Lift

G.P.M.	Draw Down (Feet Below Static)	Time (Hours)
2	Bottom OF HOLE.	2 HR.



DATE: April 2006

PROJECT NUMBER: 129684

**BROWN AND  
CALDWELL**  
Carson City, Nevada

Atlantic Richfield  
Company

**Figure 2-19**

**Well P-1 Construction Details**

Project Name: **Yerington Groundwater Investigation**Well Number: **P-1**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **1** of **7**

Boring Location: <b>On mine site, between lined evaporatin ponds</b>		Elevation: <b>4400.0 feet amsl</b>		East: <b>321698</b> North: <b>1556693</b>	
Drilling Contractor: <b>WDC</b>		Driller: <b>B. Zamow</b>		Date Started: <b>9/27/05</b> Date Finished: <b>9/27/05</b>	
Drilling Equipment: <b>Gus Pech GP24-400RS, Dietrich Sonic</b>		Total Depth: (feet) <b>58.0</b>		Water Depth: (feet) <b>44'</b>	
Sampling Method: <b>Core Barrel</b>		Borehole Diameter: <b>6"</b>		Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>26.6-46.6 ft., bottom at 46.8 ft.</b>			
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>		Filter Material: <b>#10-20 Silica Sand</b>	
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>			

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
5	4395		<b>Vat Leach Tailings</b> (0-2.25 feet) Dry, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 20 mm and ~20% silt and clay. The sand and gravel is angular. The fines are nonplastic, yellow, and do not react to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.  <b>WELL DESIGN:</b> Screened Interval: 26.6-46.6 feet. Bottom of sump: 46.8 feet.  Cement Grout: 0-18.5 feet. Bentonite Chips: 18.5-23.5 feet. Filter Pack: #60 Sand 23.5-24 feet, #10-20 Sand 24-50 feet. Bentonite Chips: 50-58 feet  Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: ~xxxx feet amsl.  PVC Stick-up: 2.5 feet above land surface.

Project Name: Yerington Groundwater InvestigationWell Number: P-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
10	4390							
15	4385							
		GC	<b>CLAYEY GRAVEL with SAND</b> (16.5-17 feet) Moist to saturated, loose, no odor. Primarily gravel to ~20 mm with ~35% coarse to fine sand and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellow, and do not react to HCl.					
		GC	<b>ASPHALT LINER</b> (17-17.1 feet)					
			<b>CLAYEY GRAVEL with SAND</b> (17.1-18 feet) Moist to saturated, loose, no odor. Primarily gravel to ~20 mm with ~35% coarse to fine sand and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellow, and do not react to HCl.					
		CL						

Project Name: Yerington Groundwater InvestigationWell Number: P-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 3 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
20	4380		<b>SANDY LEAN CLAY</b> (18-21 feet) Dry to moist, firm, no odor. Primarily silt and clay with ~40% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
		SM	<b>SILTY SAND</b> (21 -21.5 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (21.5 -22.5 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (22.5-25 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
25	4375	SC	<b>CLAYEY SAND</b> (25-25.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~40% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (25.5-26 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~30% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		CL	<b>CLAYEY SAND</b> (26-27 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~40% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.					
		SW-SM	<b>SANDY LEAN CLAY</b> (27-27.5 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~50% medium to fine sand and trace gravel to ~8 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and reacts strongly to HCl.					
		SM	<b>WELL-GRADED SAND with SILT</b> (27.5-28 feet) Dry, medium dense, no odor.					

Project Name: **Yerington Groundwater Investigation**Well Number: **P-1**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **4** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
30	4370	CL	Primarily medium to fine sand with trace fine gravel to 10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
			<b>SILTY SAND</b> (28-29 feet) Dry, dense, no odor.					
		SC	Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (29-30 feet) Dry to moist, stiff, no odor.					
35	4365	SM	Primarily silt and clay with ~30% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and react strongly to HCl.					
			<b>CLAYEY SAND</b> (30-31 feet) Dry, dense, no odor.					
			Primarily medium to fine sand with ~10% gravel to ~12 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity, low toughness, are yellowish brown, and do not react to HCl.					
			<b>SILTY SAND</b> (31-33 feet) Dry to moist, medium dense, no odor.					
		SW-SM	Primarily medium to fine sand with ~5% gravel to ~8 mm and ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, react strongly at the top of the interval, and do not react to HCl in the lower portion of the interval.					
			<b>WELL-GRADED SAND with SILT</b> (33-35 feet) Dry to moist, medium dense, no odor.					
			Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (39-40 feet) Dry to moist, medium dense, no odor.					



Project Name: **Yerington Groundwater Investigation**Well Number: **P-1**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **5** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
40	4360	SM	Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (40-41 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (41-43 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (43-43.25 feet) Dry to moist, stiff, no odor.					
		SM	Primarily silt and clay with ~40% medium to fine sand to ~2 mm. The sand is subangular to angular. The fines have medium plasticity and toughness, are brown (10YR 4/3), and react strongly to HCl.					
		SW	<b>SILTY SAND</b> (41-43 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
45	4355		<b>WELL-GRADED SAND</b> (44-45.5 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand with ~15% gravel to ~10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (45.5-47.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (47.75-49 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (49-50 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand with ~15% gravel to ~15 mm, ~15% fine sand, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines					

Project Name: Yerington Groundwater InvestigationWell Number: P-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50	4350	SM	are nonplastic, brown, and have no reaction to HCl. <b>SILTY SAND</b> (50-51.25 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand to ~5 mm, ~15% fine sand, and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (51.25-52 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.					
		SM	<b>SILTY SAND</b> (52-54 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse and to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (54-54.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse and to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL						
55	4345	SM	<b>SANDY LEAN CLAY</b> (54.5-54.75 feet) Moist, stiff, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and react strongly to HCl.					
		CL						
		SM						
		CL	<b>SILTY SAND</b> (54.75-55.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM						
		SC	<b>SANDY LEAN CLAY</b> (55.25-55.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and react strongly to HCl.					
		SM						
			<b>SILTY SAND</b> (55.5-55.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (55.75-56 feet) Moist, stiff, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and react strongly to HCl.					
			<b>SILTY SAND</b> (56-56.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>CLAYEY SAND</b> (56.25-57 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~2 mm and ~40% silt and					

Project Name: Yerington Groundwater InvestigationWell Number: P-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 7 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			<p>clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.</p> <p><b>SILTY SAND</b> (57-58 feet)</p> <p>Saturated, medium dense, no odor.</p> <p>Primarily medium to coarse sand to ~4 mm, ~20% fine sand, and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p>					

## BROWN AND CALDWELL

## BORING LOG

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW1Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 1 of 7

Boring Location: <b>Process Area</b>		Land Elevation: <b>4437.2 feet amsl</b>	East: <b>325687.236</b> North: <b>1546291.713</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>J. Love</b>	Date Started: <b>1/24/05</b>	Date Finished: <b>1/25/05</b>
Drilling Equipment: <b>GEFCO 15L with Sonicor 50K Drill Head</b>		Total Depth: (feet) <b>126.0</b>	Water Depth: (feet) <b>93' / 92.2'</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch Nominal Dia., SCH40 PVC</b>	
Drilling Method: <b>Sonic</b>		Screened Interval and Well Depth: <b>90.5-110.5 ft., bottom at 111 ft.</b>	
Well Seal: <b>Bentonite and Cement</b>		Slot Size: <b>0.020"</b>	Filter Material: <b>#3 Monterey Sand</b>
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
5	4435	SW	<b>WELL GRADED SAND with GRAVEL</b> (0-1.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 12 mm and ~5% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines do not react to HCl.			<p>Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.</p> <p>Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.</p> <p>WELL DESIGN:            Screened Interval: 90.5-110.5 feet            Bottom of sump: 111 feet            Cement Grout: 0-10 feet            Bentonite Chips: 10-86 feet            Filter Pack: #60 Sand 86-87 feet, #3 Sand 87-126 feet            Depth to Water Measuring Point is Top of Steel Monument,            Elevation: ~4,441.04 feet amsl            Stick-up: ~3.8 feet above land surface.</p> <p>All depths are below land surface unless stated otherwise.</p>	
		SC	<b>CLAYEY GRAVEL with SAND</b> (1.5-3 feet) Dry, dense, no odor. Predominately fine gravel to 20 mm with ~30% medium sand and ~30% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and a strong reaction to HCl.				
		SP	<b>POORLY-GRADED SAND</b> (3-5 feet) Dry, dense, no odor. Predominately medium sand with trace coarse sand to 3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic have a strong reaction to HCl.				
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (5-7 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~10% silt and clay. The gravel and sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
		CL	<b>SANDY LEAN CLAY</b> (7-8 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 8 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark brown (7.5YR 3/3), and do not react to HCl.				
10	4430	SM	<b>SILTY SAND</b> (8-16 feet) Dry, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 10 mm and ~25% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and a strong reaction to HCl.				
	4425						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&amp;CALD.GDT 5/25/05

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW1Soil Boring ☐Monitoring Well ☒

Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
	4420	SC	<b>CLAYEY SAND</b> (19-18 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 25 mm and ~30% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness.				
20			NO RECOVERY				
	4415	SC	<b>CLAYEY SAND</b> (21-22 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 10 mm and ~25% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and a strong reaction to HCl.				
		CL					
		SM	<b>SANDY LEAN CLAY</b> (22-22.5 feet) Dry, hard, no odor. Predominately silt and clay with ~25% fine to medium sand and trace fine gravel to 8 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark gray (7.5YR 4/1), and have a strong reaction to HCl.				
25			<b>SILTY SAND with GRAVEL</b> (22.5-25.5 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
		CL					
		SM	<b>SANDY LEAN CLAY</b> (25.5-25.75 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
	4410	CL					
		SM	<b>SILTY SAND with GRAVEL</b> (25.75-27.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
30			<b>SANDY LEAN CLAY</b> (27.5-28 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
		CL					
		SM	<b>SILTY SAND with GRAVEL</b> (28-30 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4405		<b>SANDY LEAN CLAY</b> (30-31 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular,				

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW1Soil Boring ☐Monitoring Well ☒

Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
35			the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl. <b>SILTY SAND with GRAVEL</b> (31-37.5 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
4400							
		CL	<b>SANDY LEAN CLAY</b> (37.5-38 feet) Dry, hard, no odor.				
		SM	Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 12 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl. <b>SILTY SAND with GRAVEL</b> (38-45.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
40							
4395							
		CL	<b>SANDY LEAN CLAY</b> (45.5-46 feet) Dry, hard, no odor.				
		CL	Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong reaction to HCl. <b>LEAN CLAY</b> (46-48 feet) Dry, hard, no odor.				
4390							
		CL	Predominately silt and clay with ~10% fine to medium sand and trace coarse sand to 5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (48-53.5 feet) Dry, hard, no odor. Predominately silt and clay with ~30% fine to medium sand and trace coarse sand to 5 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/2), and have a strong reaction to HCl.				
50							
4385							
		SP	<b>POORLY-GRADED SAND</b> (53.5-58.5 feet) Dry, very dense, no odor.				

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW1Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 4 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
55			Predominately medium sand with ~5% fine gravel to 20mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and have no reaction to HCl.				
	4380						
		SM	<b>SILTY SAND with GRAVEL</b> (58.5-71 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% fine to coarse gravel to 25 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a weak reaction to HCl.				
60							
	4375						
65							
	4370						
70							
		SW-SM-CL	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (71-71.5 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~25% fine gravel to 20 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4365						
		SW-SM	<b>SANDY LEAN CLAY</b> (71.5-73 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&amp;CALD.GDT 5/25/05

# BORING LOG

Well Number: **PA-MW1**

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SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 5/25/05



Project Name: Yerington Groundwater InvestigationWell Number: PA-MW1Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 6 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log		Remarks
				Water Level	Lithology	
95	4340					
100		CL	<b>SANDY LEAN CLAY</b> (100-102 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/4), and do not react to HCl.			
	4335	CL	<b>SANDY LEAN CLAY</b> (102-109 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and trace fine gravel to 5 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/4), and do not react to HCl.			
105						
	4330					
		CL	<b>SANDY LEAN CLAY</b> (109-112 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% gravel. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/6), and do not react to HCl.			
110						
	4325	SC	<b>INTERBEDDED POORLY-GRADED SAND and SANDY LEAN CLAY</b> (112-117 feet) Thinly interbedded (~1 cm thick).			

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW1Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 7 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
115			<b>POORLY-GRADED SAND</b> Dry to moist, dense, no odor. Predominately coarse to medium sand to 5 mm with trace fine sand and ~5% silt and clay. The sand is subangular. The fines are nonplastic and do not react to HCl. <b>SANDY LEAN CLAY</b> Moist to saturated, stiff, no odor. Predominately silt and clay with ~45% coarse to medium sand and ~5% fine gravel to 20 mm. The gravel is subangular, the sand is subangular. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and do not react to HCl.				
4320		CL	<b>SANDY LEAN CLAY (117-119 feet)</b> Moist to dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand, ~5% gravel, and ~10% cobbles to >100 mm. The cobbles are subangular gneiss, the gravel is subangular, and the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
120		CL	<b>SANDY LEAN CLAY (119-120 feet)</b> Moist to saturated, stiff, no odor. Predominately silt and clay with ~30% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
4315		GW-GM	<b>WELL-GRADED GRAVEL with SILT (121-122 feet)</b> Dry, dense, no odor. Predominately gneissic cobbles to 3 inches with ~30% gravel and ~10% silt and clay. The cobbles are subangular, the gravel is subangular. The fines have medium plasticity and toughness and do not react to HCl.				
		CL	<b>SANDY LEAN CLAY (122-123 feet)</b> Moist to dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand, ~5% gravel, and ~10% cobbles to >100 mm. The cobbles are subangular gneiss, the gravel is subangular, and the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
125		GW-GM	<b>SANDY LEAN CLAY (123-124.5 feet)</b> Dry, hard, no odor. Predominately silt and clay with ~30% fine to medium sand and ~10% fine to coarse gravel to 40 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
		CL	<b>WELL-GRADED GRAVEL with SILT (124.5-125 feet)</b> Dry, dense, no odor. Predominately gneissic cobbles to 3 inches with ~30% gravel and ~10% silt and clay. The cobbles are subangular, the gravel is subangular. The fines have medium plasticity and toughness and do not react to HCl.				
		CL	<b>SANDY LEAN CLAY (125-126 feet)</b> Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine to coarse gravel to 50 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are light yellowish brown (2.5Y 6/3), and do not react to HCl.				

Project Name: **Yerington Groundwater Investigation**Well Number: **PA-MW2**Soil Boring ☐Monitoring Well ☒Project Number: **126259.001**Sheet **1** of **9**

Boring Location: <b>Process Area</b>		Land Elevation: <b>4481.6 feet amsl</b>	East: <b>322936.938</b> North: <b>1547233.463</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>J. Love</b>	Date Started: <b>1/20/05</b>	Date Finished: <b>1/21/05</b>
Drilling Equipment: <b>GEFCO 15L with Sonicor 50K Drill Head</b>		Total Depth: (feet) <b>159.0</b>	Water Depth: (feet) <b>140' / 139.2'</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch Nominal Dia., SCH40 PVC</b>	
Drilling Method: <b>Sonic</b>		Screened Interval and Well Depth: <b>134.5-154.5 ft., bottom at 155 ft.</b>	
Well Seal: <b>Bentonite and Cement</b>		Slot Size: <b>0.020"</b>	Filter Material: <b>#3 Monterey Sand</b>
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
		SM	<b>SILTY SAND with GRAVEL</b> (0-1 feet) Moist, dense, no odor. Predominately medium to fine sand with ~20% fine gravel to 15 mm and ~15% silt and clay. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
	4480	SM	<b>SILTY SAND with GRAVEL</b> (1-5 feet) Same as above but dry and medium dense.				
5		SC	<b>CLAYEY SAND with GRAVEL</b> (5-10 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~20% fine gravel to 15 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
	4475						
10		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (10-16 feet) Dry, loose, no odor. Predominately medium to fine sand with ~25% fine to coarse gravel to 30 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				<b>WELL DESIGN:</b> Screened Interval: 134.5-154.5 feet Bottom of sump: 155 feet Cement Grout: 0-10 feet Bentonite Chips: 10-130 feet Filter Pack: #60 Sand 130-131 feet, #3 Sand 131-159 feet Depth to Water Measuring Point is Top of PVC Casing, Elevation: ~4,484.38 feet amsl. Stick-up: ~2.8 feet above land surface. (Stick-up of Monument is ~3.3 feet above land surface) All depths are below land surface unless stated otherwise.
	4470						

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW2Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 2 of 9

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
	4465	SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (16-19 feet) Same as above but medium dense.				
20	4460	SC	<b>CLAYEY SAND with GRAVEL</b> (19-22 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~30% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
		SM	<b>SILTY SAND</b> (22-24 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~10% fine to coarse gravel to 30 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
25	4455	SC	<b>CLAYEY SAND</b> (24-31.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 30 mm and ~35% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
30	4450	SC	<b>CLAYEY SAND</b> (31.5-39 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				

# BORING LOG

Project Name: **Yerington Groundwater Investigation**

Well Number: **PA-MW2**

## Soil Boring

Monitoring Well ☒

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
35							
4445							
		SM	<b><u>SILTY SAND with GRAVEL</u></b> (39-45 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 12 mm, and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
4440							
		CL	<b><u>SANDY LEAN CLAY</u></b> (45-47.5 feet) Dry, very stiff, no odor. Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.				
4435							
		SC	<b><u>CLAYEY SAND with GRAVEL</u></b> (47.5-49 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 20 mm and ~20% silt and clay. The gravel is very angular to angular, the sand is angular to subangular. The fines have medium plasticity and toughness and do not react to HCl.				
		CL	<b><u>SANDY LEAN CLAY</u></b> (49-55 feet) Dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl. Thinly bedded.				
50							
4430							

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&amp;CALD.GDT 5/25/05

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW2Soil Boring ☐Monitoring Well ☒

Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
55		SC	<b>CLAYEY SAND with GRAVEL</b> (55-56 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 20 mm and ~20% silt and clay. The gravel is very angular to angular, the sand is angular to subangular. The fines have medium plasticity and toughness and no reaction to HCl.				
	4425	CL	<b>SANDY LEAN CLAY</b> (56-57 feet) Dry, hard, no odor, thinly bedded. Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
		SC	<b>NO RECOVERY</b> <b>CLAYEY SAND</b> (59-62.5 feet) Dry, dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 12 mm and ~30% silt and clay. The gravel is very angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
60							
	4420						
		SC	<b>CLAYEY SAND</b> (62.5-69 feet) Dry, dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~40% silt and clay. The gravel is very angular to subangular, the sand is subangular. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
65							
	4415						
		CL	<b>SANDY LEAN CLAY</b> (69-70.5 feet) Moist to dry, hard, no odor. Predominately silt and clay with ~30% fine to medium sand and ~5% fine gravel to 13 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
70		SC	<b>CLAYEY SAND</b> (70.5-75 feet) Dry, dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~10% fine gravel to 10 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
	4410						

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW2Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 5 of 9

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
75	4405	CL	<b>SANDY LEAN CLAY</b> (75-78 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.				
80	4400	CL	<b>SANDY LEAN CLAY</b> (78-84 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and do not react to HCl.				
85	4395	SC	<b>CLAYEY SAND</b> (84-85 feet) Dry, dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~35% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
		CL	<b>SANDY LEAN CLAY</b> (85-95 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and do not react to HCl.				
90	4390						

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW2Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 6 of 9

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
95	4385	SW-SM	<b>WELL-GRADED SAND with SILT</b> (95-97 feet) Dry, loose to medium dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 10 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
		CL	<b>SANDY LEAN CLAY</b> (97-99 feet) Dry to moist, stiff, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 13 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.				
100	4380	CL	<b>SANDY LEAN CLAY</b> (99-108.5 feet) Dry, hard, no odor, laminated to thinly bedded. Predominately silt and clay with ~50% fine to medium sand and trace coarse sand to 3 mm. The sand is subangular to subrounded. The fines have medium plasticity and medium to low toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
105	4375						
		CL	<b>SANDY LEAN CLAY</b> (108.5-112 feet) Moist, hard, no odor, massive (no visible bedding). Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, mottled color, and do not react to HCl.				
110	4370						
		CL	<b>SANDY LEAN CLAY</b> (112-122.5 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand and				



Project Name: Yerington Groundwater InvestigationWell Number: PA-MW2Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 7 of 9

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
115	4365		trace fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and do not react to HCl.				
120	4360						
125		SC	<b>CLAYEY SAND</b> (122.5-125 feet) Moist, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~40% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
	4355		NO RECOVERY				
130	4350	SC	<b>CLAYEY SAND with GRAVEL</b> (130-137 feet) Moist, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 15 mm and ~25% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&amp;CALD.GDT 5/25/05

Project Name: Yerington Groundwater InvestigationWell Number: PA-MW2Soil Boring ☐Monitoring Well ☒Project Number: 126259.001Sheet 8 of 9

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
135	4345						
		SC	<b>CLAYEY SAND</b> (137-142 feet) Moist to 140 feet and saturated to 142 feet, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~35% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
140	4340						Measured 2/9/2005
		CL	<b>SANDY LEAN CLAY</b> (142-149 feet) Moist to saturated, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine to coarse gravel to 25 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				Measured in borehole
145	4335						
		SP	<b>POORLY-GRADED SAND</b> (149-159 feet) Saturated, medium dense to dense, no odor. Predominately medium to fine sand with trace fine gravel to 10 mm and ~5% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
150	4330						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&amp;CALD.GDT 5/25/05

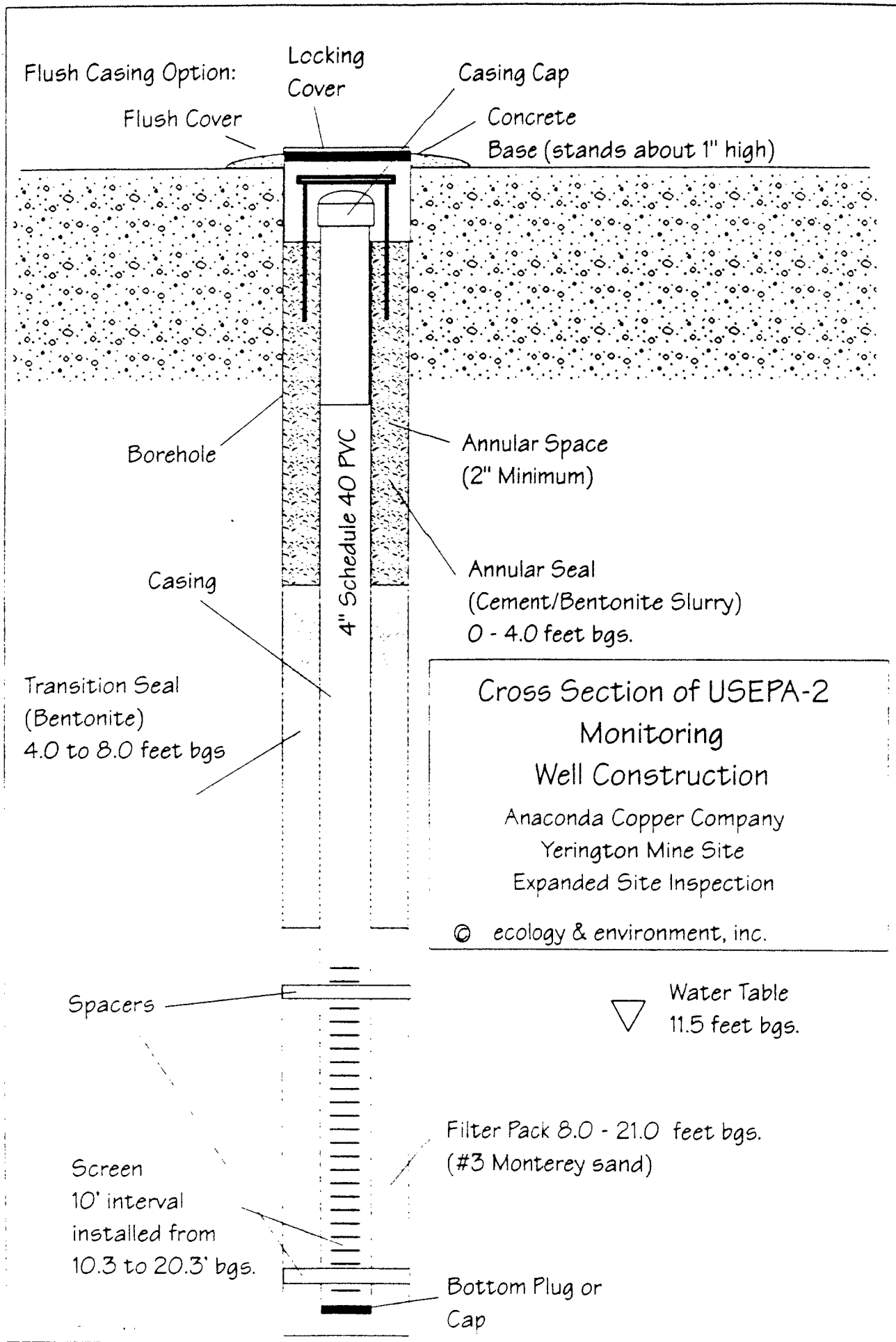
# BORING LOG

Well Number: **PA-MW2**

**126259.001**

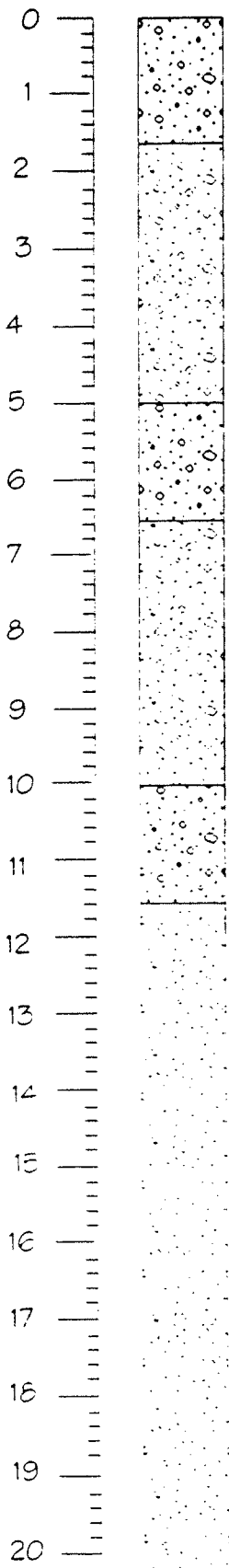
Sheet 9 of 9

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
155	4325						



# Boring USEPA-2

## Depth (ft.) Graphic Log



## Verbal Description

Road base 1st. 0.5 ft.

Lt. brown, graded sand w/ pea gravel - unconsolidated, loose, dry; 1.5 ft. recovery.

SW

No recovery to depth, except where noted. Lithology logged from auger cuttings as course, well-graded sand w/ pea gravel; loose, moist

course, well-graded sand w/ pea gravel; loose, moist.

SW

Course, well graded sand w/ pea gravel; saturated below 11.5 feet

SW

Groundwater at 11.5 feet on 10/21/00. Stabilized to 11.6 on 10/23/00.

Overdrilled to 21 ft. depth and installed with 10 to 20 foot screen interval. Cuttings from auger indicated same lithology to depth.

Drilling Commenced on 10/20/00 via hollow-stemmed auger method. Drilling was completed on 10/21/00. The total depth of the boring was 21 feet below ground surface (bgs.). The initial boring was advanced with an 8-inch auger and was overdrilled with 10-inch auger prior to well installation. The well was installed with a slotted screen interval of 10 feet, from 20.3 to 10.3 feet below ground surface. The stabilized water level was 11.6 feet below the ground surface level prior to sampling on 10/23/00. The well location is 310640.6 Eastings and 4321197.4 Northings at an approximate elevation of 4360 feet above sea level.

PRINT OR TYPE ONLY  
DO NOT WRITE ON BACK

# WELL DRILLER'S REPORT

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

NOTICE OF INTENT NO. 1

1. OWNER Bob Duval ADDRESS AT WELL LOCATION 91 Lutzer Lane  
MAILING ADDRESS Verington Nev 89447  
2. LOCATION NW 1/4 NE 1/4 Sec. 6 T. 13 S. R. 25 E. Lyon County  
PERMIT NO. 14-411-03 Parcel No. Par. #1 Subdivision Name

3. WORK PERFORMED  
☒ New Well ☐ Replace ☐ Recondition  
☐ Deepen ☐ Abandon ☐ Other  
4. PROPOSED USE  
☒ Domestic ☐ Irrigation ☐ Test  
☐ Municipal/Industrial ☐ Monitor ☐ Stock  
5. WELL TYPE  
☐ Cable ☒ Rotary ☐ RVC  
☐ Air ☐ Other

6. LITHOLOGIC LOG				
Material	Water Strata	From	To	Thick-ness
Top Soil		0	2	2
Hard Pan		2	3	1
Hard Pan - Rock		3	5	2
Coarse Sand - Gravel		5	10	5
Coarse Sand - Clay		10	15	5
Coarse Sand - Gravel		15	57	42
Coarse Sand - Clay		57	76	19
Coarse Sand - Clay - Rock		76	96	20
Clay - Coarse Sand - Rock		96	146	50
Coarse Sand - Gravel - Rock	X	146	185	39
Vol Rock - Solid - To Few Fractured		185	220	35
Fractured Vol Rock	X	220	239	19

8. WELL CONSTRUCTION  
Depth Drilled 239 Feet Depth Cased 240'6" Feet

HOLE DIAMETER (BIT SIZE)			
	From	To	
10 7/8 Inches	0	144	Feet
7 7/8 Inches	144	239	Feet

CASING SCHEDULE				
Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
6 7/8	12.92	.108	+1.5	239

Perforations:  
Type perforation Saved  
Size perforation 9 3/4 x 3 1/2 x 6 Rows  
From 219 feet to 239 feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet

Surface Seal: ☒ Yes ☐ No Seal Type:  
Depth of Seal 50 ☐ Neat Cement  
Placement Method: ☐ Pumped ☐ Cement Grout  
☒ Poured ☒ Concrete Grout  
Gravel Packed: ☐ Yes ☐ No  
From 50 feet to 239 feet

9. WATER LEVEL  
Static water level 149 feet below land surface  
Artesian flow \_\_\_\_\_ G.P.M. \_\_\_\_\_ P.S.I.  
Water temperature 64.4 °F Quality Good

10. DRILLER'S CERTIFICATION  
This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Ogden Bros Drilling Contractor  
Address 162 N. ByBee Lane Contractor  
Verington Nev 89447  
Nevada contractor's license number issued by the State Contractor's Board 15846  
Nevada driller's license number issued by the Division of Water Resources, the on-site driller 634  
Signed [Signature]  
By driller performing actual drilling on site or contractor  
Date 10-28-93

Date started May 21, 1993  
Date completed June 6, 1993

7. WELL TEST DATA			
TEST METHOD: <input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Pump <input type="checkbox"/> Air Lift			
	G.P.M.	Draw Down (Feet Below Static)	Time (Hours)
<u>Bailer</u>	<u>25</u>	<u>10</u>	<u>1/2 Hrs</u>

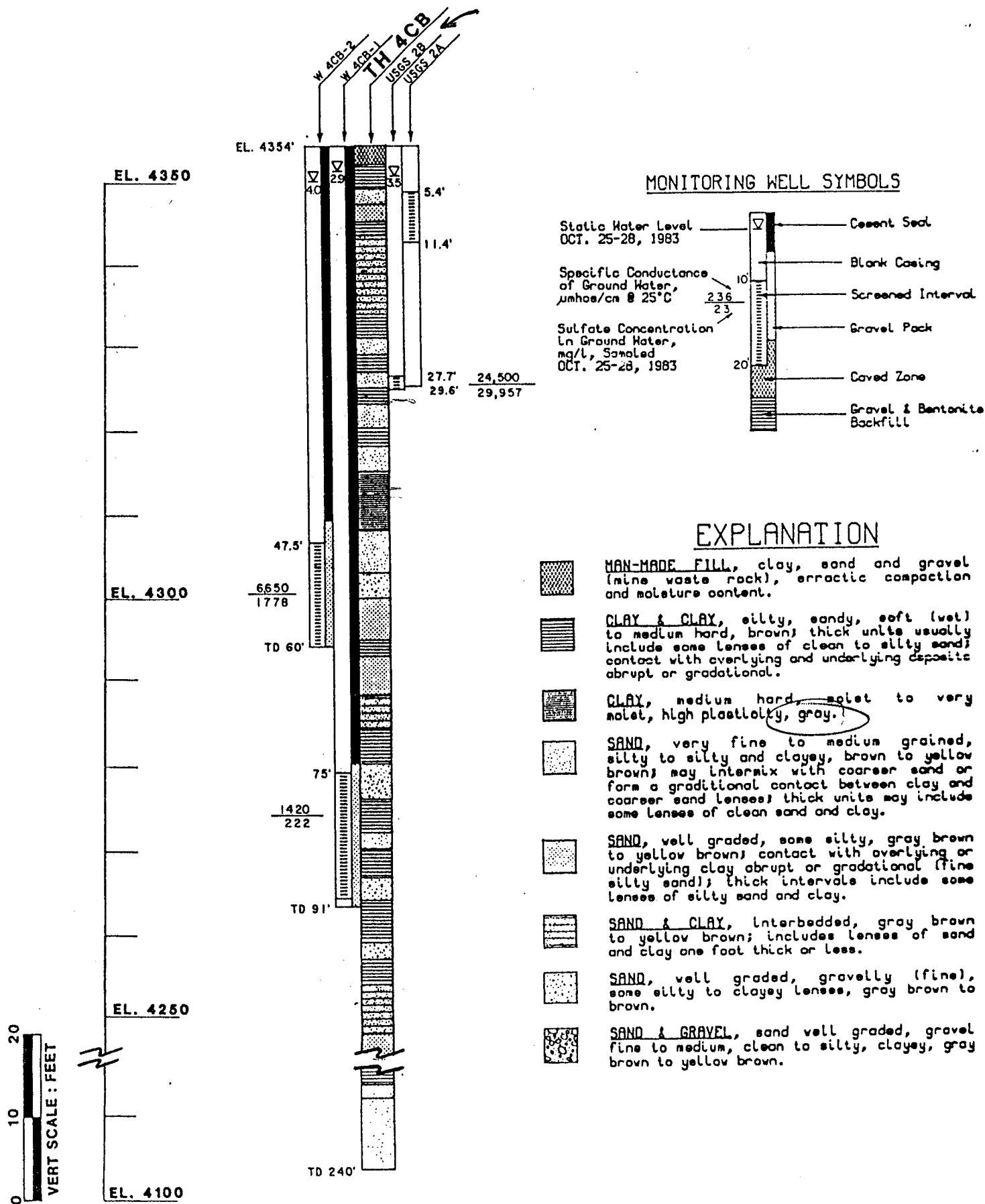


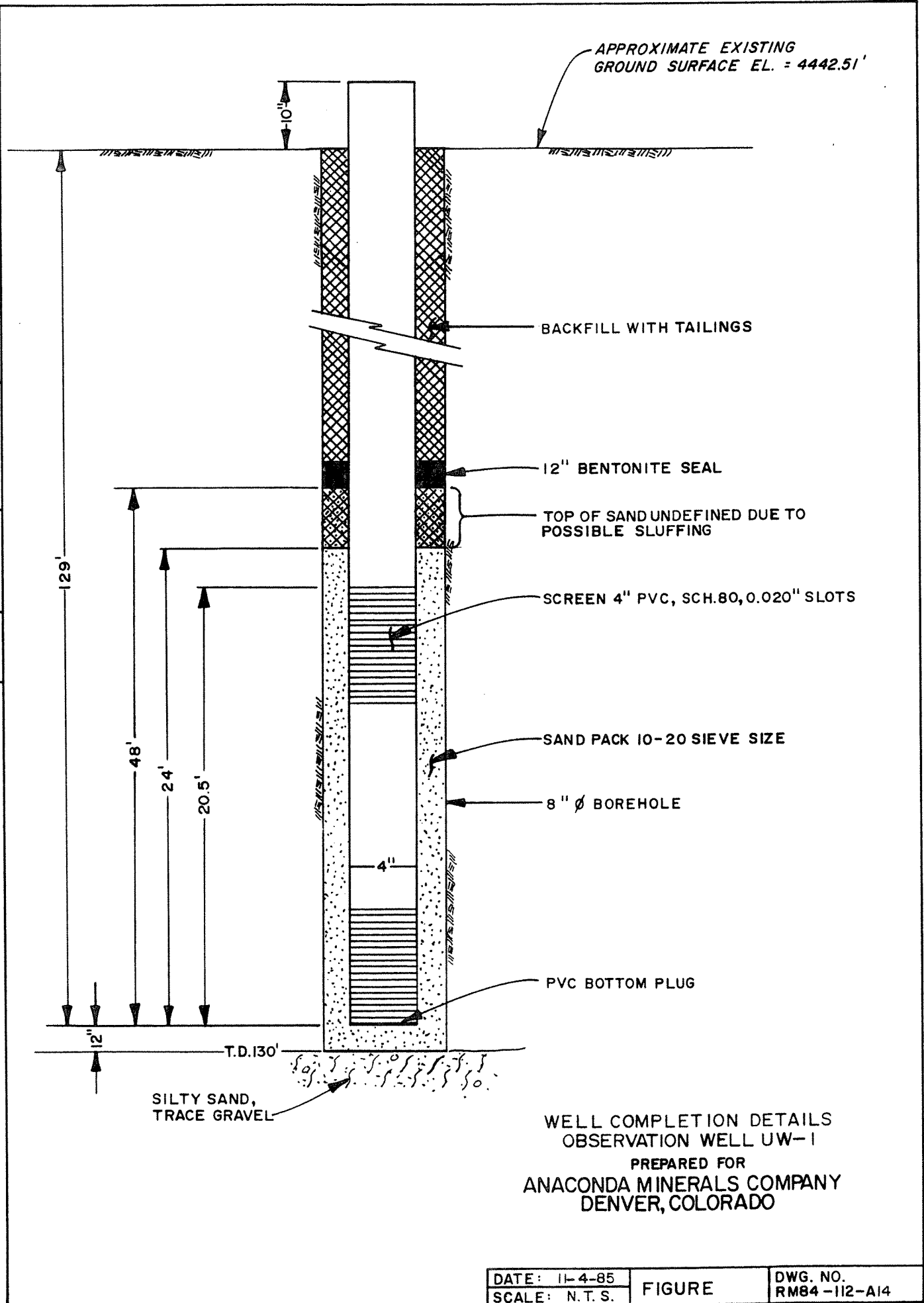
Figure 3 Well Completion Details and Lithologic Log for W4CB Well Site

DRAWING RM84-112-A14  
NUMBER

CHECKED BY  
11-4-85  
APPROVED BY

DRAWN  
BY

A. Cervantes





## WELL DRILLERS REPORT

**PRINT OR TYPE ONLY**

**Please complete this form in its entirety**

filed  
NOTICE OF INTENT NO. 10-11-83

1. OWNER Anaconda Minerals ADDRESS AT WELL LOCATION \_\_\_\_\_  
MAILING ADDRESS 555 17th Street Yearington, Nevada  
Denver, Colorado 80202

2. LOCATION NE 1/4 NE 1/4 Sec. X 5 T. 13 N. X R. 25 E. Lyon County

PERMIT NO. \_\_\_\_\_

Issued by Water Resources	Parcel No.	Subdivision Name
---------------------------	------------	------------------

3. TYPE OF WORK		MONITOR		4. PROPOSED USE			5. TYPE WELL			
New Well	<input type="checkbox"/>	Recondition	<input type="checkbox"/>	Domestic	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>	Test	<input checked="" type="checkbox"/>	
Deepen	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>	Municipal	<input type="checkbox"/>	Industrial	<input type="checkbox"/>	Stock	<input type="checkbox"/>	
							Cable	<input type="checkbox"/>	Rotary	<input checked="" type="checkbox"/>
							Other	<input type="checkbox"/>		

[illegible]

8. **WELL CONSTRUCTION**

Diameter hole 10 inches Total depth 39 feet

Casing record 10 ft. of 10"

Weight per foot \_\_\_\_\_ Thickness \_\_\_\_\_

Diameter	From	To
<u>10</u> inches	<u>0</u> feet	<u>10</u> feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet

Surface seal: Yes ☒ No ☐ Type cement

Depth of seal 18 feet

Gravel packed: Yes ☒ No ☐

Gravel packed from 18 feet to 39 feet

**Perforations:**

Type perforation screened

Size perforation \_\_\_\_\_

From Blank 0 feet to 18 feet

From screened 18 feet to 39 feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

9. **WATER LEVEL**

Static water level 2.7 feet below land surface

Flow \_\_\_\_\_ G.P.M. \_\_\_\_\_ P.S.I.

Water temperature \_\_\_\_\_ ° F. Quality \_\_\_\_\_

10. **DRILLERS CERTIFICATION**

This well was drilled under my supervision and the report is true to the best of my knowledge.

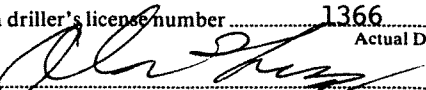
Name Lang Exploratory Drilling (Alan Lang Well & Pump Inc.)  
Contractor

Address 185 W. 3300 So. SLC, Utah 84115  
Contractor

Nevada contractor's license number 016675

Nevada contractor's drillers number 020710

Nevada driller's license number 1366  
Actual Driller

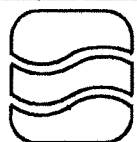
Signed   
ALAN LANG Contractor

Date 4-30-84

7. WELL TEST DATA			
Pump RPM	G.P.M.	Draw Down	After Hours Pump

**BAILER TEST**

G.P.M.....	Draw down.....feet	.....hours
G.P.M.....	Draw down.....feet	.....hours
G.P.M.....	Draw down.....feet	.....hours



Applied  
Hydrology  
Associates, Inc.

W5AA-3

COMPLETION DIAGRAM

PROJECT: YERINGTON  
DRILLING CO: ANDRESEN EXPLORATION  
DRILLER: RANDY BARR  
CLIENT: M. FLICKINGER-A.E.R.L.  
GEOLOGIST/SUPERVISOR: N. HATFIELD  
AHA JOB#: 55-05  
DRILLING METHOD: AUGER  
BORING STARTED: 10/24/98

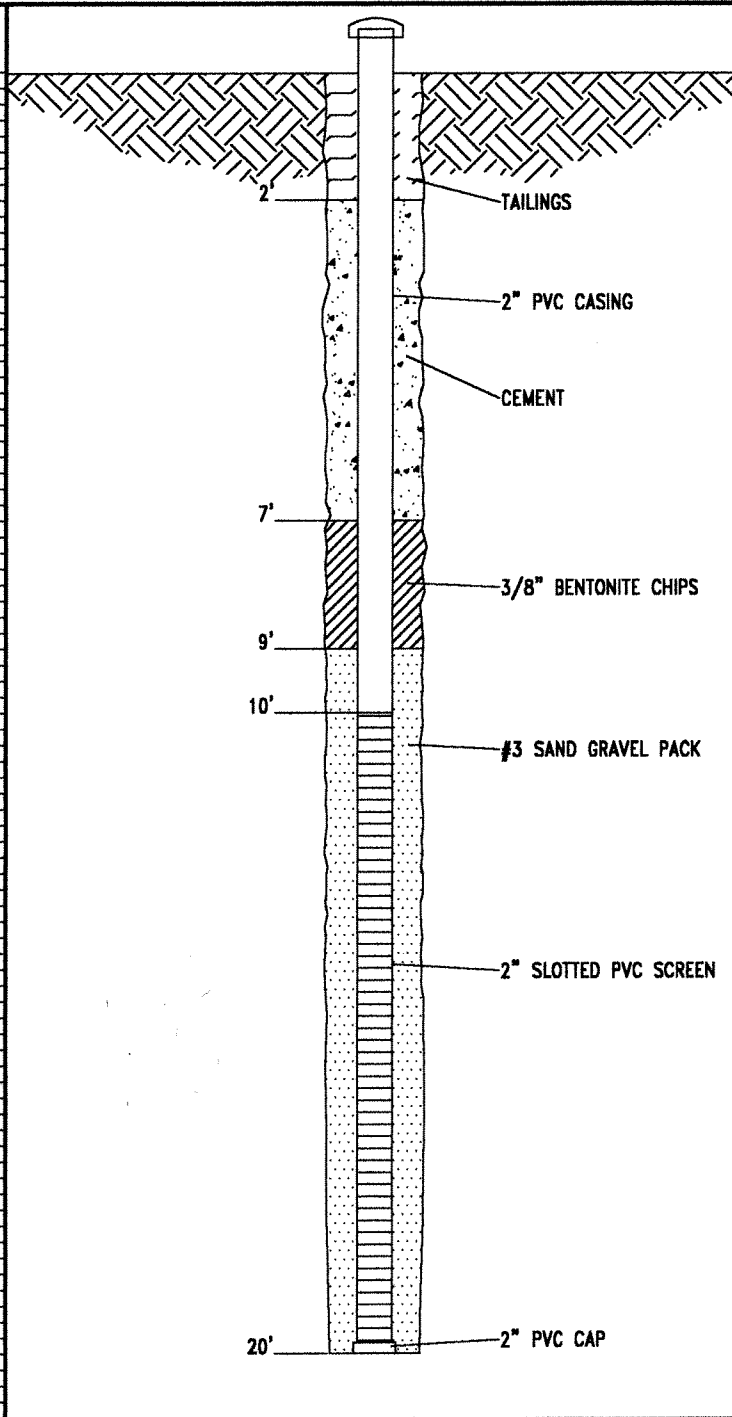
WELL TYPE: MONITORING WELL  
WELLHEAD TYPE: STICK-UP  
WELL COMPLETED: 10/24/98  
WELL DEVELOPED: 10/26/98  
DATE SURVEYED: 12/4/98  
SCREEN SLOT SIZE: 0.02"  
SCREEN TYPE: SCH 40 PVC  
FILTER PACK: SAND

CASING DIAMETER: 2"  
CASING MATERIAL: SCH 40 PVC  
BORING DIAMETER: 7.25"  
TOP OF CASING ELEV. (FT): 4355.66  
GROUND ELEVATION (FT): 4351.42  
LOCATION: NORTH OF BERM  
NORTHING (FT): 44950.86  
EASTING (FT): 29151.71

LITHOLOGY LOG

DEPTH  
ft (bgs)

	GRAVEL TAILINGS, gry	3.0'	0
			1
	SAND, silty, med grained	15.0'	2
			3
			4
			5
			6
			7
	CLAY, sandy, brn	18.0'	8
			9
			10
	CLAY, grn/gry	20.0'	11
			12
			13
			14
			15
			16
			17
			18
			19
			20
			21



**PRINT OR TYPE ONLY**

**Please complete this form in its entirety**

NOTICE OF INTENT NO. 10-11-83

1. OWNER <u>Anaconda Minerals</u>	ADDRESS AT WELL LOCATION _____
MAILING ADDRESS <u>555 17th Street</u>	<u>Yearington, Nevada</u>
<u>Denver, Colorado 80202</u>	

2. LOCATION NW ¼ NE ¼ Sec. 5 T. 13 N. R. 25 E Lyon County

PERMIT NO.	Issued by Water Resources	Parcel No.	Subdivision Name
------------	---------------------------	------------	------------------

3.	TYPE OF WORK MONITOR		4.	PROPOSED USE			5. TYPE WELL
	New Well <input type="checkbox"/>	Recondition <input type="checkbox"/>		Domestic <input type="checkbox"/>	Irrigation <input type="checkbox"/>	Test <input checked="" type="checkbox"/>	Cable <input type="checkbox"/> Rotary <input checked="" type="checkbox"/>
	Deepen <input type="checkbox"/>	Other <input checked="" type="checkbox"/>		Municipal <input type="checkbox"/>	Industrial <input type="checkbox"/>	Stock <input type="checkbox"/>	Other <input type="checkbox"/>

## 6. LITHOLOGIC LOG

[illegible]

Date started.....10-22....., 1983  
Date completed.....10-24....., 1983

## 7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump

## BAILER TEST

G.P.M..... Draw down.....feet .....hours  
G.P.M..... Draw down.....feet .....hours  
G.P.M..... Draw down.....feet .....hours

## 8. WELL CONSTRUCTION

[illegible]

Surface seal: Yes ☒ No ☐ Type concrete

Depth of seal.....12.....feet.

Gravel packed: Yes ☒ No ☐

Gravel packed from 12 feet to 28 feet  
caved zone 28' to 30'

**Perforations:**

Type perforation screened

### Size perforation

From **Blank** 0 feet to 12 feet

From screened 12 feet to 28 feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

## 9. WATER LEVEL

Static water level 3.5 feet below land surface

Flow ..... G.P.M. .... P.S.I.

Water temperature \_\_\_\_\_° F. Quality \_\_\_\_\_

## 10. DRILLERS CERTIFICATION

**This well was drilled under my supervision and the report is true to the best of my knowledge.**

Name Lang Exploratory Drilling (Alan Lang Well & Contractor Pump Inc.)

Address 185 W. 3300 So. SLc, Utah 84115  
Contractor

Nevada contractor's license number 016675

Nevada contractor's drillers number 020710

Nevada driller's license number 1366  
Actual Driller

Signed ALAN LANG Contractor

Date 4-30-84

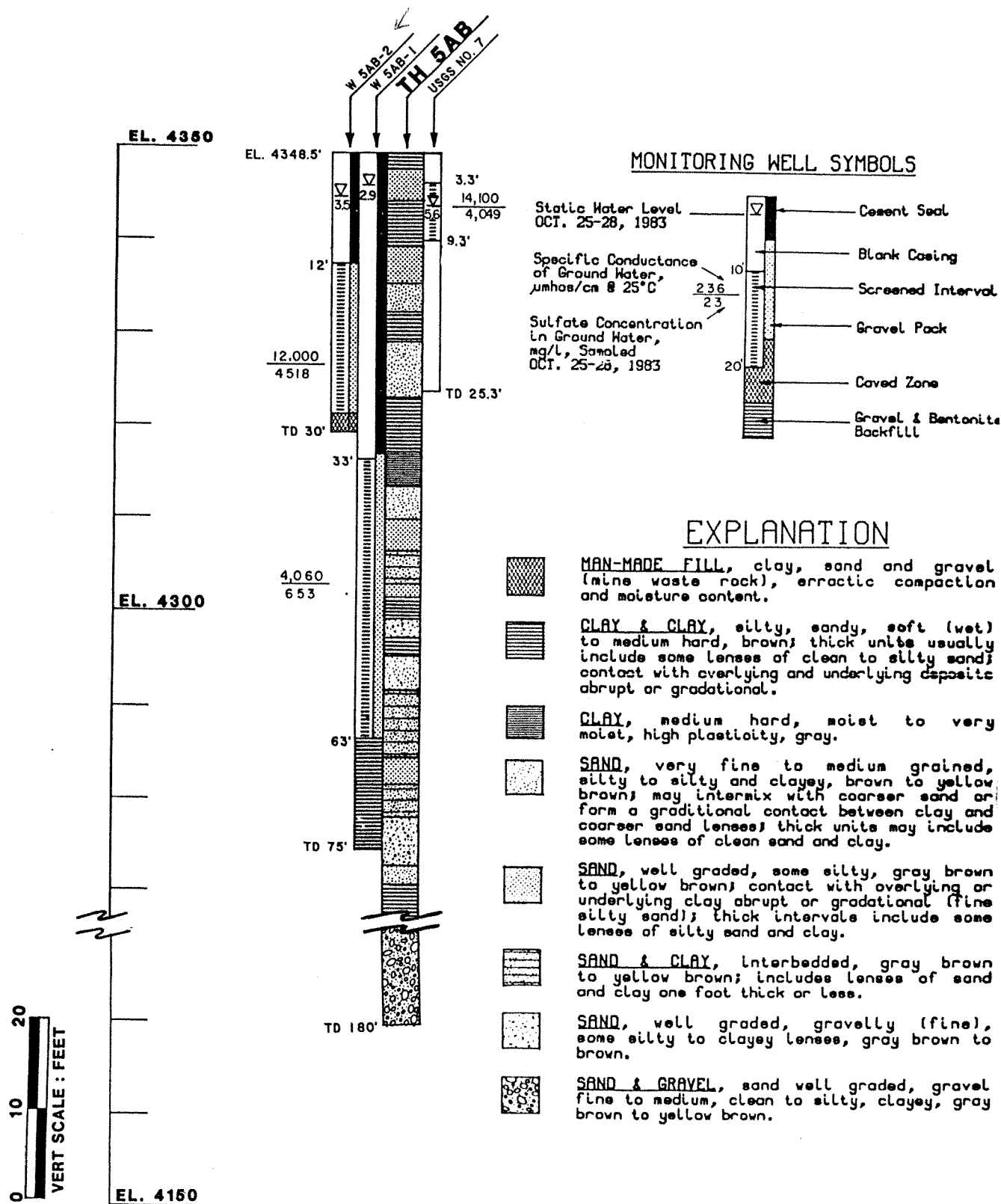


Figure 10 Well Completion Details and Lithologic Log for W5AB Well Site

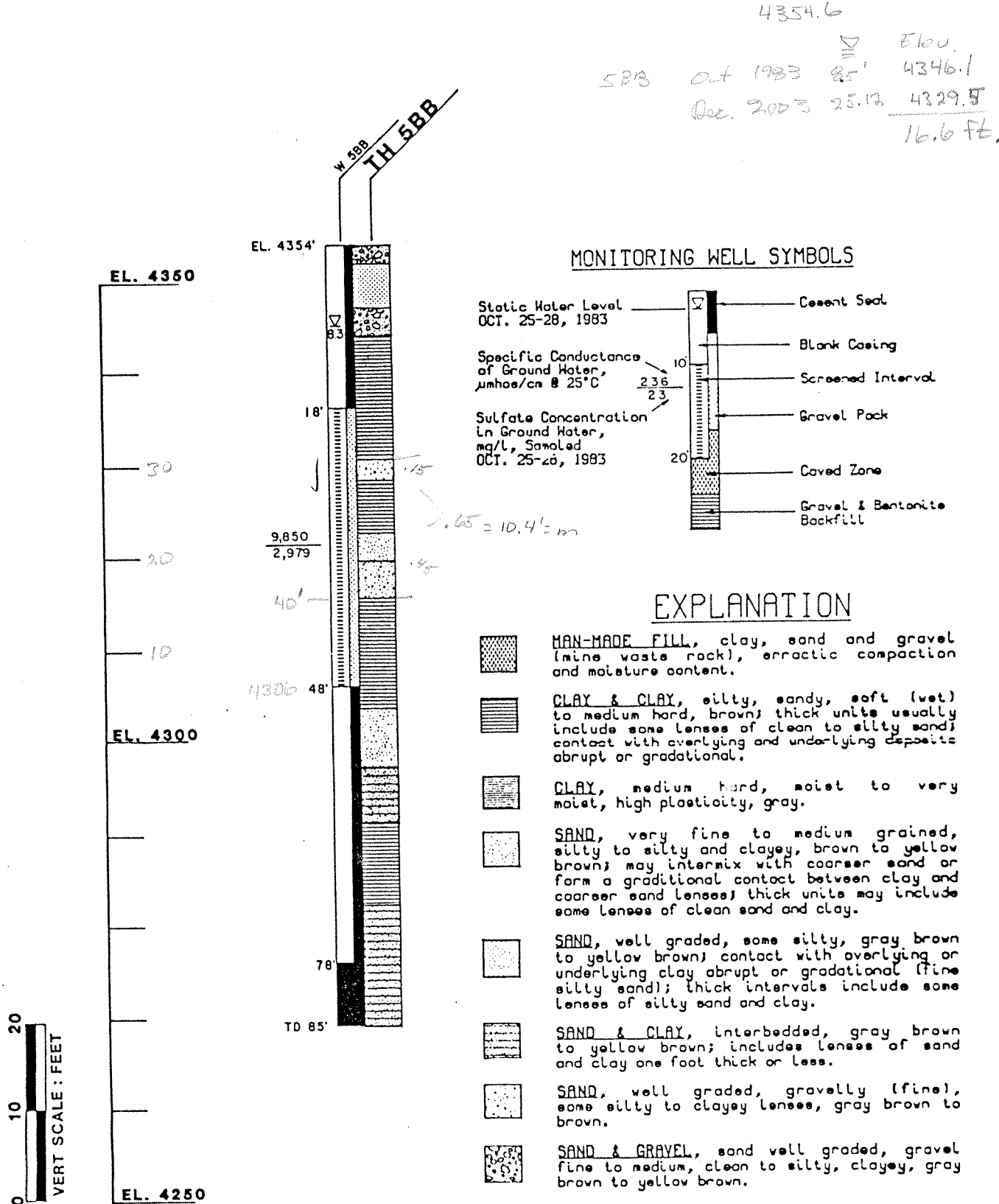
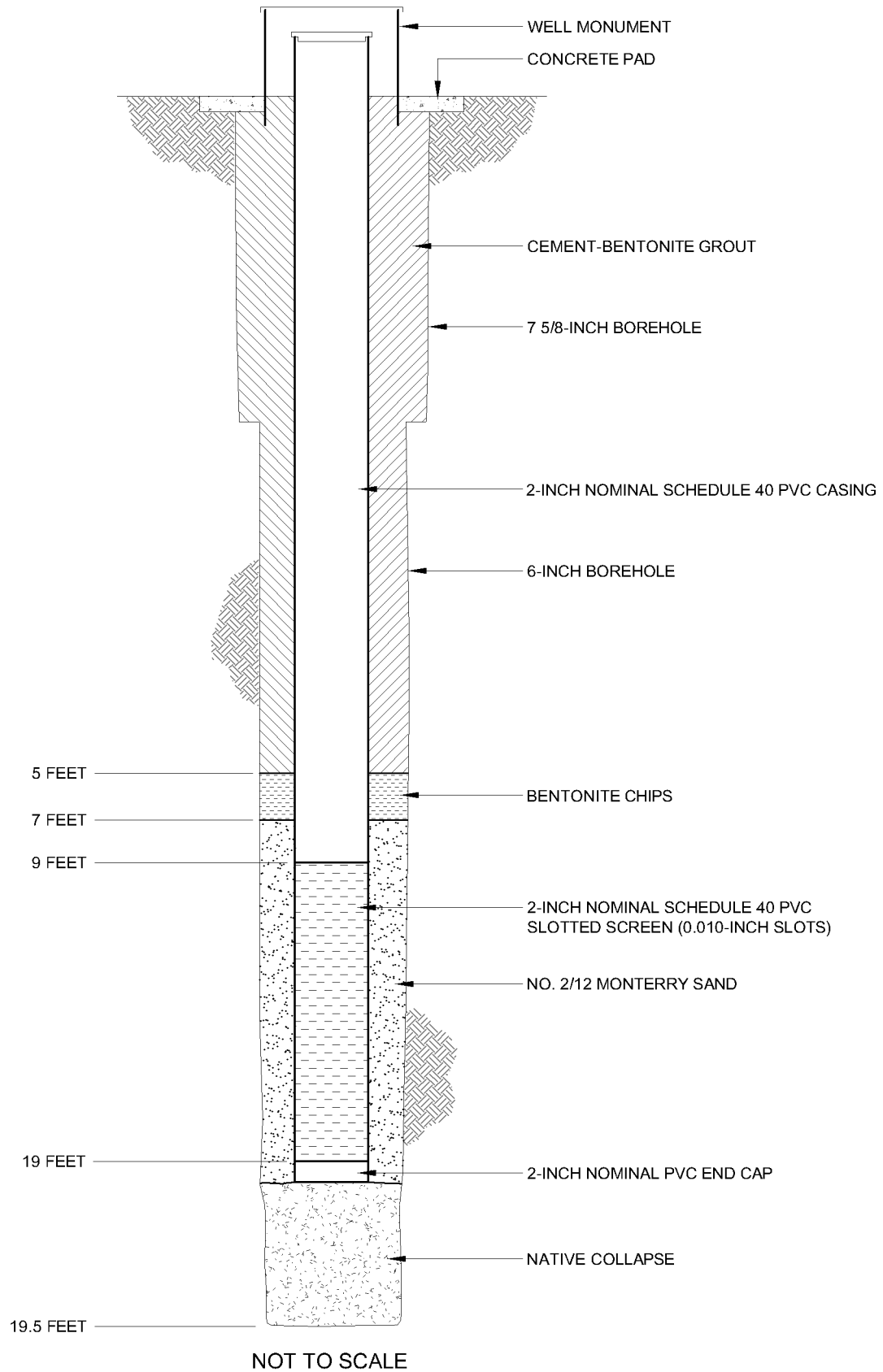


Figure 16 Well Completion Details and Lithologic Log for W5BB Well Site



**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well WRP-1  
Construction Details**

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☐

Piezometer: ☒

Boring/Well Number: WRP-1

Sheet 1 of 2

<b>Boring Location:</b> East side of Walker River ~1/4 mi south of Bridge Street		<b>Northing:</b> 1539617.7	<b>Easting:</b> 329827.1
<b>Drilling Contractor:</b> Cascade Drilling	<b>Driller:</b>	<b>Top of PVC Elevation:</b> 4393.8 feet amsl	
<b>Drilling Equipment:</b>	<b>Borehole Diameter:</b> 8-inches	<b>Ground Surface Elevation:</b> 4391.8 feet amsl	
<b>Drilling Method:</b> Hollow Stem Auger	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 6/19/07	<b>Date Finished:</b> 6/19/07
<b>Sampling Method:</b> Split Spoon		<b>Completed Depth:</b> 19.5 fbg	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> B. Bass		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC	
		<b>Slot Size:</b> 0.020 inch	<b>Filter Material:</b> 2/12 Monterrey Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
	4390		<b>Backfill (0 - 2)</b> Dry					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
		SP	<b>Poorly Graded Sand with Silt (2 - 5.5)</b> Moist, with medium density. no odor. Primarily fine sand with a grayish brown color.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
5								All depths are below land surface unless stated otherwise.
	4385	CL	<b>Lean Clay (5.5 - 12)</b> Moist, firm, no odor. Primarily silt and clay with no gravel or sand. The fines have low plasticity and toughness, with a dark brownish gray color.					WELL DESIGN for WRP-1: PVC Stickup: 2.00 feet Cement - Bentonite Grout: 0 - 5 feet Bentonite Chips: 5 - 7 feet No. 60 Silica Sand: NA feet 2/12 Monterrey Sand Filter Pack: 7 - 19 feet 2-inch Nominal Schedule 80 PVC 0.020 Slotted Screen: 9 - 19 feet Native Collapse: 19 - 19.5 feet Additional Bentonite Fill: NA feet
10								Number of wells at this location: 1 Screen intervals for paired wells are labeled at the installed depths.
	4380	SW	<b>Well-Graded Sand (12 - 15)</b> Wet, loose, no odor. Primarily medium to fine sand with ~20% coarse grain sand and no fines. The sand grains are multi-colored.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


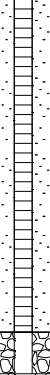
Soil Boring: ☐

Monitoring Well: ☐

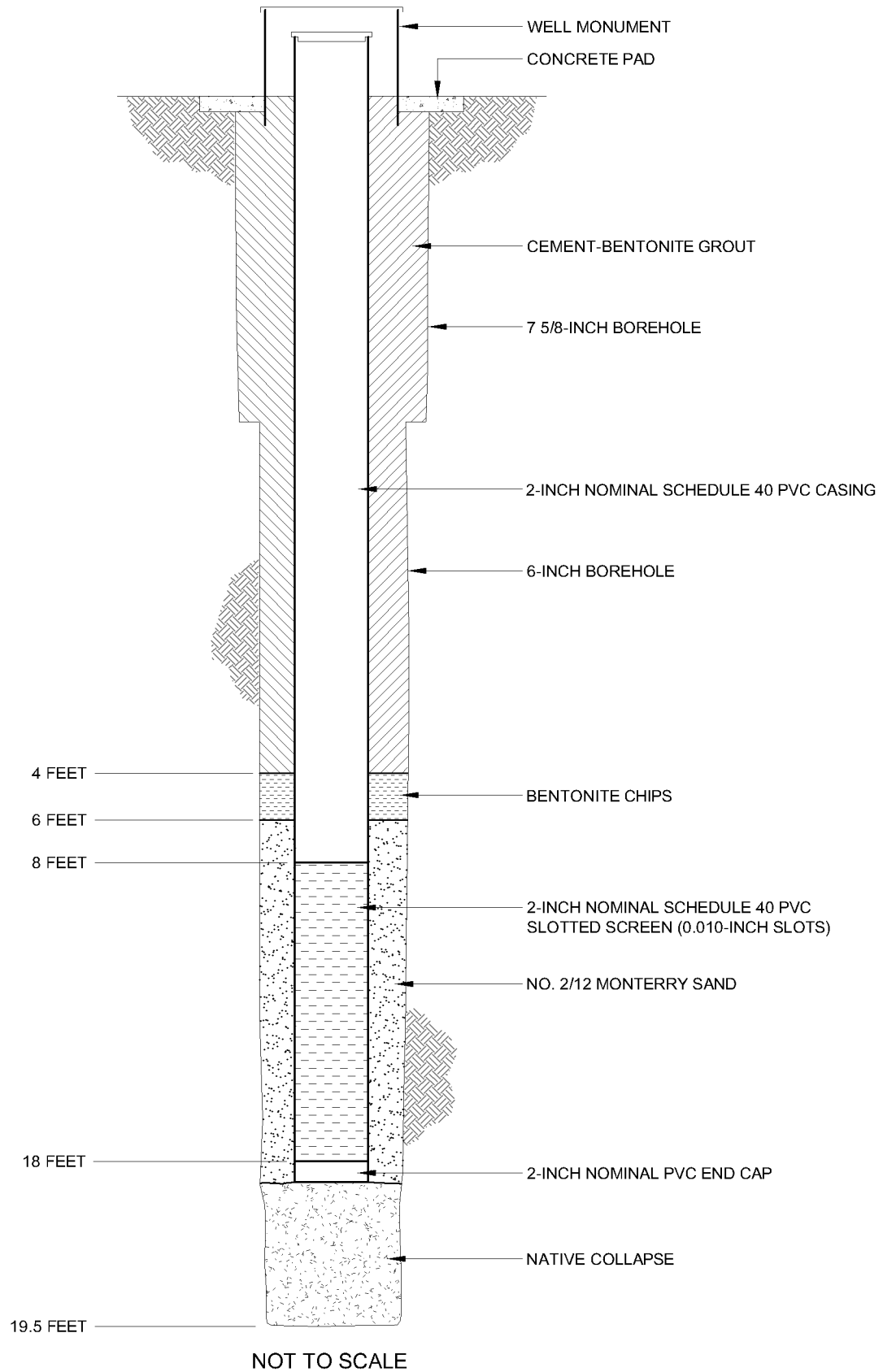
Piezometer: ☒

Boring/Well Number: WRP-1

Sheet 2 of 2

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SW	<b>Well-Graded Sand with Clay (15 - 19.5)</b> Wet, loose, no odor. Primarily silt and clay with ~20% medium grain sand and ~30% fine grain sand. The sand grains are multi-colored.					
4375								
			Bottom of Borehole at 19.5 feet below ground surface.					
4370								
4365								
4360								





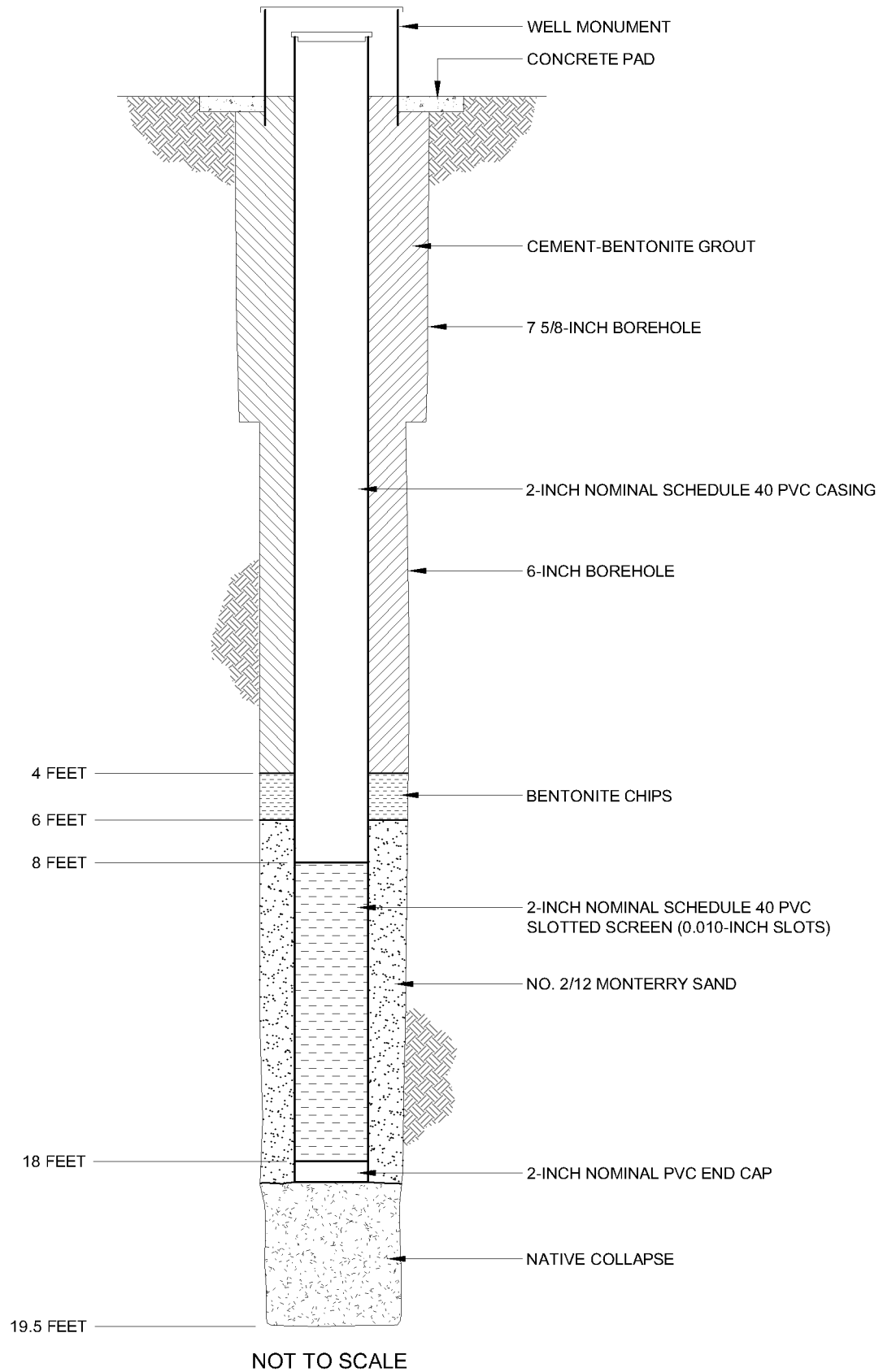
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well WRP-2  
Construction Details**



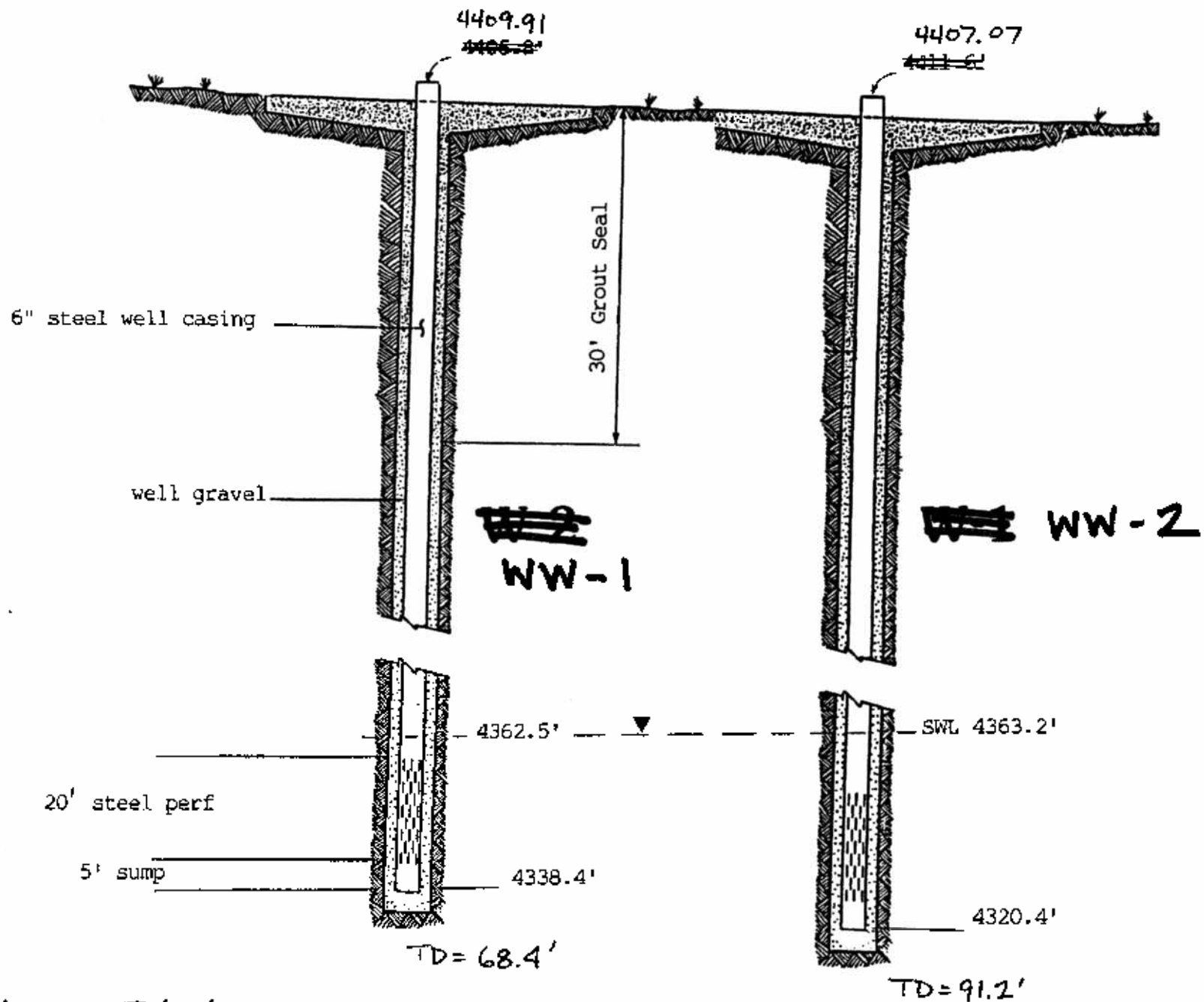
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well WRP-2  
Construction Details**



NOTES:

- 1) Monitoring point elevations resurveyed in 2008
- 2) Well IDs were changed + inadvertently swapped > 5 years ago. Actual depth confirmed with weighted tape measure.

FIGURE 9.

Slot Monitor Well Schematics (not to scale)

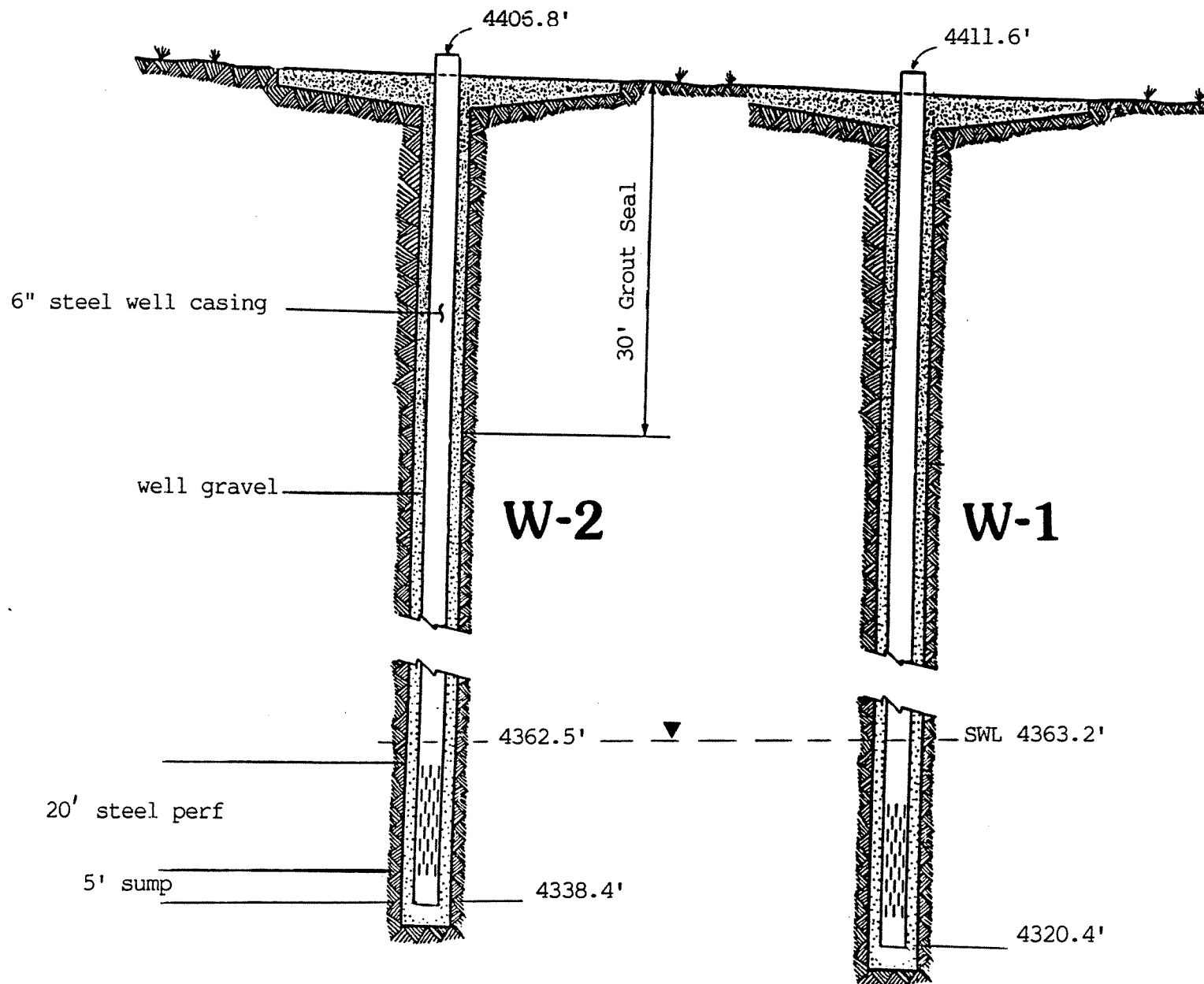


FIGURE 9. Slot Monitor Well Schematics (not to scale)

Application #14112 Well #2  
**WELL LOG AND REPORT TO THE STATE**  
**ENGINEER OF NEVADA**

Log No. 1912  
 Rec. May 26 1952  
 Well No.  
 Permit No. 14112 11109  
 Do not fill in

Owner Anaconda Copper Mining Company Driller Mel Meyer  
 Address Box 632 Yerington Nevada Address 120 Mendenhall Blvd. Lic. No. 3  
 Location of well: N.W. 1/4 NE 1/4 Sec. 21, T. 13 N/S, R. 25 E, in Lyon County  
 or 3337 Ft. S. 89° - 55'E. of the West Common Corner of Sec. 16 and 21  
 Water will be used for MINING (DRAINING MINE) Total depth of well 314'  
 Size of drilled hole 14" Weight of casing per linear foot 37.7 -  
 Thickness of casing 1/4" - 3/16" Temp. of water 57  
 Diameter and length of casing 14" x 180' - 12" x 286'  
 (Casing 12" in diameter and under give inside diameter; casing 12" in diameter give outside diameter.)  
 If flowing well give flow in c.f.s. or g.p.m. and pressure.  
 If nonflowing well give depth of standing water from surface 70'  
 If flowing well describe control works (Type and size of valve, etc.)  
 Date of commencement of well 7-16-52 Date of completion of well 4-24-52  
 Type of well rig ABAR Tools

**LOG OF FORMATIONS**

From feet	To feet	Thickness feet	Type of material
0	55	55'	OVER BURDEN
55	65	10	FINE SAND & GRAVEL
65	75	10	OVER BURDEN
75	85	10	BAGGAGE HEAVING SAND & GRAVEL
85	95	10	SAND GRAVEL
95	107	12	SAND GRAVEL
107	113	6	DISCOMPOSED ROCK
113	128	15	ROCK
128	136	8	ROCK
136	144	8	ROCK
144	155		HARD ROCK
155	314	159'	BROKEN ROCK

Water-bearing Formation, Casing Perforations, Etc.

Chief aquifer (water-bearing formation)

from 75' to 314' ft.

Other aquifers

First water at 90 feet

Casing perforated

from 110' to 286' ft.

Size of perforations

1/4 x 4"

WEAL 柱 1

From feet	To feet	Thickness	Type of material

Diam. casing	From feet	To feet	Length	"Remarks"—Seals, Grouting, Etc.
14"	0	180	180	14" ID CASING WITH DRIVE SHOES
12"	0	286	286	12" ID " " NO DRIVE SHOES

Test Pumped 414 GPM. WITH 9.7 DD.  
Pump on Pump. 1000 GPM. But BIST AT 750 GPM

(Not to be filled in by Driller)

Signed: Mike Mayne  
Well Driller

By John Meyer

License No. 3

Dated 5-17-52, 19



# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☐

Piezometer: ☒

Boring/Well Number: WRP-2

Sheet 1 of 2

<b>Boring Location:</b> East side of Walker River near bridge on Bridge Street		<b>Northing:</b> 1541520.1	<b>Easting:</b> 330064.7
<b>Drilling Contractor:</b> Cascade Drilling	<b>Driller:</b>	<b>Top of PVC Elevation:</b> 4393.05 feet amsl	
<b>Drilling Equipment:</b>	<b>Borehole Diameter:</b> 8-inches	<b>Ground Surface Elevation:</b> 4390.6 feet amsl	
<b>Drilling Method:</b> Hollow Stem Auger	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 6/19/07	<b>Date Finished:</b> 6/19/07
<b>Sampling Method:</b> Split Spoon		<b>Completed Depth:</b> 19.5 fbg	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> B. Bass		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC	
		<b>Slot Size:</b> 0.020 inch	<b>Filter Material:</b> 2/12 Monterrey Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
	4390	GW	<b>Well-Graded Gravel with Sand (0 - 3)</b> Dry, medium dense, no odor. Primarily gravel to ~10% coarse grain sand, ~15% medium grain sand, ~15% fine grain sand and ~ 10% silt and clay. The color is medium brown.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
		ML	<b>Clayey Silt (3 - 6)</b> Moist, very dense, no odor. Primarily silt and clay with a geyish-brown color.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
5								Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
	4385	CL-ML	<b>Silty Clay (6 - 9)</b> Moist, firm, no odor. Primarily silt and clay with no gravel or sand. The fines have moderate to high plasticity, is very tough, and have a dark gray color.					All depths are below land surface unless stated otherwise.
		CL-ML	<b>Silty Clay (9 - 10.5)</b> Wet, firm, no odor. Primarily silt and clay with no gravel or sand. The fines have moderate to high plasticity, is very tough, and have a dark gray color.					WELL DESIGN for WRP-2: PVC Stickup: 2.45 feet. Cement - Bentonite Grout: 0 - 4 feet Bentonite Chips: 4 - 6 feet No. 60 Silica Sand: NA feet 2/12 Monterrey Sand Filter Pack: 6 - 18 feet 2-inch Nominal Schedule 80 PVC 0.020 Slotted Screen: 8 - 18 feet Native Collapse: 18 - 19.5 feet Additional Bentonite Fill: NA feet
10								Number of wells at this location: 1 Screen intervals for paired wells are labeled at the installed depths.
	4380	SW	<b>Well-Graded Sand with Silt (10.5 - 15)</b> Saturated, loose, no odor. Primarily silt and clay with ~20% medium grain sand and ~30% fine grain sand. The sand grains are white, black and brown.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


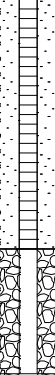
Soil Boring: ☐

Monitoring Well: ☐

Piezometer: ☒

Boring/Well Number: WRP-2

Sheet 2 of 2

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4375		SW	<b>Well-Graded Sand (15 - 19.5)</b> Wet, loose, no odor. Primarily fine sand with ~40% medium grain sand. The sand grains are white, black and brown.					
			Bottom of Borehole at 19.5 feet below ground surface.					
4370								
4365								
4360								



# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☐ Piezometer: ☒

Boring/Well Number: WRP-2

Sheet 1 of 2

<b>Boring Location:</b> East side of Walker River near bridge on Bridge Street		<b>Northing:</b> 1541520.1	<b>Easting:</b> 330064.7
<b>Drilling Contractor:</b> Cascade Drilling	<b>Driller:</b>	<b>Top of PVC Elevation:</b> 4393.05 feet amsl	
<b>Drilling Equipment:</b>	<b>Borehole Diameter:</b> 8-inches	<b>Ground Surface Elevation:</b> 4390.6 feet amsl	
<b>Drilling Method:</b> Hollow Stem Auger	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 6/19/07	<b>Date Finished:</b> 6/19/07
<b>Sampling Method:</b> Split Spoon		<b>Completed Depth:</b> 19.5 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> B. Bass		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC	
		<b>Slot Size:</b> 0.020 inch	<b>Filter Material:</b> 2/12 Monterrey Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
	4390	GW	<b>Well-Graded Gravel with Sand (0 - 3)</b> Dry, medium dense, no odor. Primarily gravel to ~10% coarse grain sand, ~15% medium grain sand, ~15% fine grain sand and ~ 10% silt and clay. The color is medium brown.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
		ML	<b>Clayey Silt (3 - 6)</b> Moist, very dense, no odor. Primarily silt and clay with a geyish-brown color.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
5								Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
	4385	CL-ML	<b>Silty Clay (6 - 9)</b> Moist, firm, no odor. Primarily silt and clay with no gravel or sand. The fines have moderate to high plasticity, is very tough, and have a dark gray color.					All depths are below land surface unless stated otherwise.
		CL-ML	<b>Silty Clay (9 - 10.5)</b> Wet, firm, no odor. Primarily silt and clay with no gravel or sand. The fines have moderate to high plasticity, is very tough, and have a dark gray color.					WELL DESIGN for WRP-2: PVC Stickup: 2.45 feet. Cement - Bentonite Grout: 0 - 4 feet Bentonite Chips: 4 - 6 feet No. 60 Silica Sand: NA feet 2/12 Monterrey Sand Filter Pack: 6 - 18 feet 2-inch Nominal Schedule 80 PVC 0.020 Slotted Screen: 8 - 18 feet Native Collapse: 18 - 19.5 feet Additional Bentonite Fill: NA feet
10								Number of wells at this location: 1 Screen intervals for paired wells are labeled at the installed depths.
	4380	SW	<b>Well-Graded Sand with Silt (10.5 - 15)</b> Saturated, loose, no odor. Primarily silt and clay with ~20% medium grain sand and ~30% fine grain sand. The sand grains are white, black and brown.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


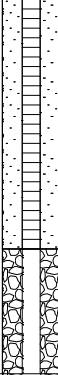
Soil Boring: ☐

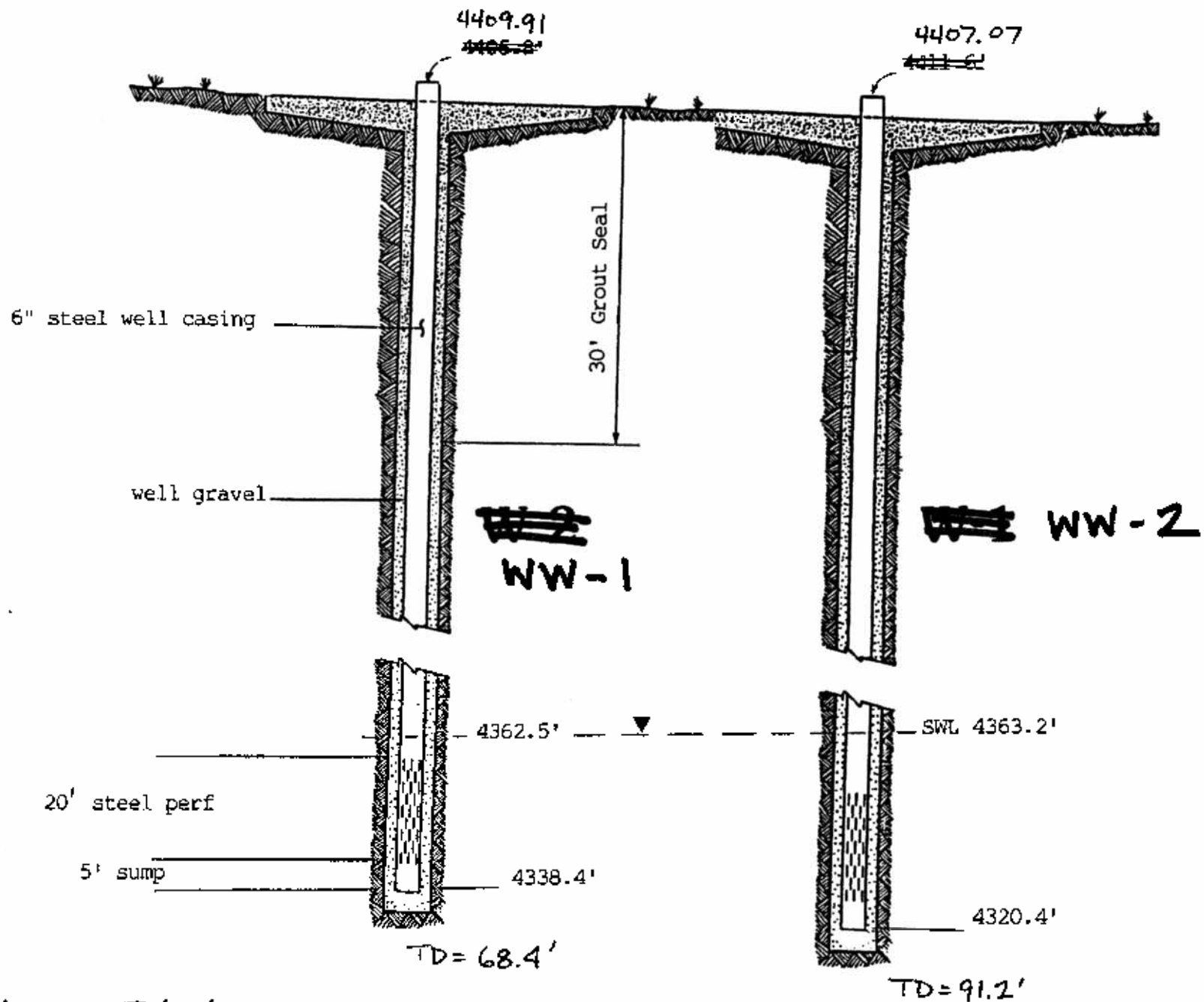
Monitoring Well: ☐

Piezometer: ☒

Boring/Well Number: WRP-2

Sheet 2 of 2

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4375		SW	<b>Well-Graded Sand (15 - 19.5)</b> Wet, loose, no odor. Primarily fine sand with ~40% medium grain sand. The sand grains are white, black and brown.					
			Bottom of Borehole at 19.5 feet below ground surface.					
4370								
4365								
4360								



NOTES:

- 1) Monitoring point elevations resurveyed in 2008
- 2) Well IDs were changed + inadvertently swapped > 5 years ago. Actual depth confirmed with weighted tape measure.

FIGURE 9.

Slot Monitor Well Schematics (not to scale)

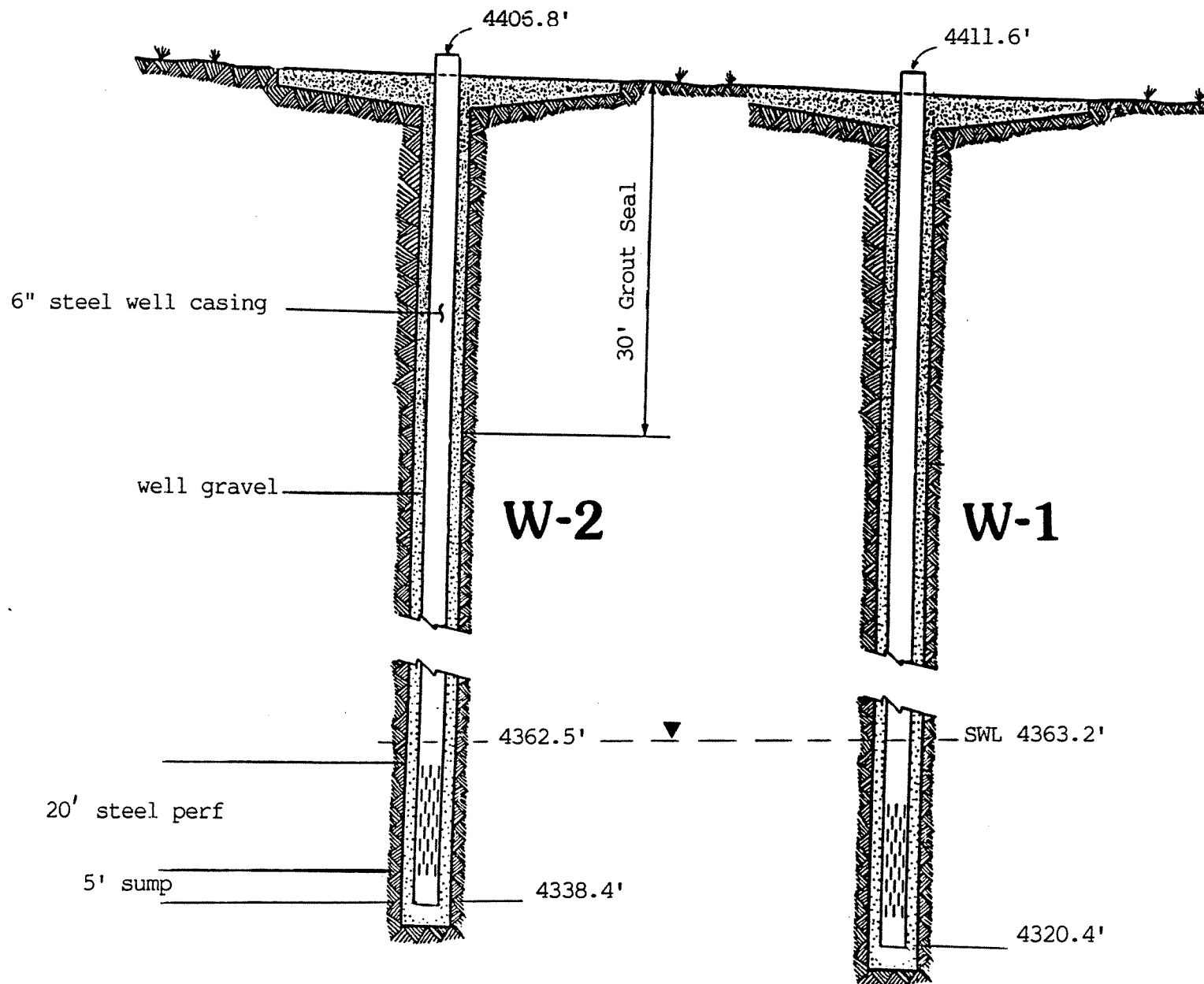


FIGURE 9. Slot Monitor Well Schematics (not to scale)

# WELL LOG AND REPORT TO THE STATE ENGINEER OF NEVADA



Log No. 2424  
Rec. Dec. 4 1952  
Well No. \_\_\_\_\_  
Permit No. 2112  
Do not fill in

Well #2 AKA PWS112  
Owner Anaconda Copper Co. Driller Lukins Bros.  
Address Yerington, Nevada Address Yerington, Nev. Lic. No. 97  
Location of well: S 41 1/4 N 41 1/4 Sec. 21, T. 2 N 8, R. 22 E, in Lyons County  
or \_\_\_\_\_  
Water will be used for Mill Total depth of well 321 Ft.  
Size of drilled hole 14" Weight of casing per linear foot \_\_\_\_\_  
Thickness of casing 1/2" Temp. of water \_\_\_\_\_  
Diameter and length of casing 14" Dia. 100 ft. Length 320 FT.  
(Casing 12" in diameter and under give inside diameter; casing 12" in diameter give outside diameter.)  
If flowing well give flow in c.f.a. or g.p.m. and pressure \_\_\_\_\_  
If nonflowing well give depth of standing water from surface 34 Ft.  
If flowing well describe control works \_\_\_\_\_  
(Type and size of valve, etc.)  
Date of commencement of well Oct. 2nd. 52 Date of completion of well Nov. 6th. 1952  
Type of well rig Cable

LOG OF FORMATIONS				Water-bearing Formation, Casing Perforations, Etc.
From feet	To feet	Thickness feet	Type of material	
0	34		Top Soil	
34	42		Gravel 1st. Water Bearing	Chief aquifer (water-bearing formation)
42	75		Cement Gravel	from <u>75</u> to <u>320</u> ft.
75	320		Water Bearing Granite Diwright	Other aquifers _____
				_____
				_____
				First water at <u>34</u> feet.
				Casing perforated
				from <u>34</u> to <u>318</u> ft.
				Size of perforations
				Chisel Slot <u>1/8"</u>

(OVER)

Well #2 ~~AKA~~ Pwell 2

## LOG OF FORMATIONS--Continued

From feet	To feet	Thickness	Type of material

## CASING RECORD

Diam. casing	From feet	To feet	Length	"Remarks"—Seals, Grouting, Etc.
14"	0	320	320ft.	Sealed in Granite

## GENERAL INFORMATION—Pumping Test, Quality of Water, Etc.

658 Per. Min.

## WELL DRILLERS STATEMENT

This well was drilled under my jurisdiction and the  
above information is true to my best information and belief.

Signed Lukins Bros.  
Partner  
Well Driller

By William L. Lukins

License No. 97

Dated Dec. 13th., 1952

(Not to be filled in by Driller)



STATE OF NEVADA  
DIVISION OF WATER RESOURCES

OFFICE USE ONLY  
Log No. 29931  
Permit No. \_\_\_\_\_  
Basin 9-102

WELL DRILLER'S REPORT

Please complete this form in its entirety

PRINT OR TYPE ONLY

NOTICE OF INTENT NO. 7431

1. OWNER Willow Creek G.I.D.

ADDRESS AT WELL LOCATION NONE

MAILING ADDRESS 15 S MAIN

Willow Creek Saver Ponds

YERINGTON NV 89447

3 Miles NW of Yerington Nevada

2. LOCATION SE 1/4 SW 1/4 Sec. 28 T. 14

N/S R. 25 E Lyon County

PERMIT NO. 8- Issued by Water Resources

14-241-13 Parcel No.

WILLOW CREEK G.I.D. Subdivision Name

3. TYPE OF WORK

New Well ☒ Recondition ☐  
Deepen ☐ Other ☐

4.

Domestic ☐  
Municipal ☐

PROPOSED USE [Monitor]

Irrigation ☐ Test ☐  
Industrial ☐ Stock ☐

5. TYPE WELL

Cable ☐ Rotary ☒  
Other ☐

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thick-ness
20% sand 80% clay		0	5	
90% sand 10% clay		5	10	
100% sand	xx	10	14	
Course Gravel	xx	14	37	
Gray Clay		37	38	
Course Gravel	xx	38	53	
Brown Clay		53	60	T.D.
Waiver issued 5-10-88				
MAY 17 9 52 AM '88 STATE ENGINEERS OFFICE				

8. WELL CONSTRUCTION

Diameter 6 3/4 inches Total depth 60 feet

inches

Casing record 2" SCH 40 PVC

Weight per foot \_\_\_\_\_ Thickness \_\_\_\_\_

Diameter	From	To
<u>2</u> inches	<u>-1</u> feet	<u>60' 5 7/8</u> feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet

Surface seal: Yes ☒ No ☐ Type Concrete

Depth of seal 5' feet

Gravel packed: Yes ☒ No ☐

Gravel packed from 5' feet to 60' 5 7/8 feet

Perforations:

Type perforation Skill Saw

Size perforation 1/8" x 5"

From <u>10' 2'</u>	feet to <u>40' 3 7/8'</u>	feet
From _____	feet to _____	feet
From _____	feet to _____	feet
From _____	feet to _____	feet
From _____	feet to _____	feet

9. WATER LEVEL

Static water level \_\_\_\_\_ feet below land surface

Flow none G.P.M. none P.S.I.

Water temperature cool °F Quality \_\_\_\_\_

10. DRILLER'S CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Sierra Pump & Drilling

Contractor

Address P.O. Box 18507 Reno, Nevada

Contractor

Nevada contractor's license number

issued by the State Contractor's Board 012236B

Nevada contractor's driller's number

issued by the Division of Water Resources 1393

Nevada driller's license number issued by the

Division of Water Resources, the on-site driller 1418

Signed Sierra Pump & Drilling

By driller performing actual drilling on site or contractor

Date 5/12/88

7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

AIR  
WATER TEST

G.P.M. 10 Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours

G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours

G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours

ES  
7  
48

I

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340.

60076

1999

ADDRESS AT WELL LOCATION Intersection of Scarsdale and Silverado

Latitude **39°2.623N** UTM E ☒ NAD 27  
Longitude **119°11.550W** N ☐ NAD 83/WGS 84

5. WELL TYPE

<input type="checkbox"/> Cable	<input checked="" type="checkbox"/> Rotary	<input type="checkbox"/> RVC
<input type="checkbox"/> Air	<input type="checkbox"/> Other	

9. <b>WELL CONSTRUCTION</b>				
Depth Drilled	<div style="display: flex; justify-content: space-between;"> <span>26 Feet</span> <span>Depth Cased 25 Feet</span> </div>			
<b>HOLE DIAMETER (BIT SIZE)</b>				
<div style="display: flex; justify-content: space-between;"> <span>From</span> <span>To</span> </div>				
10	<div style="display: flex; justify-content: space-between;"> <span>Inches 0 Feet</span> <span>26 Feet</span> </div>			
	<div style="display: flex; justify-content: space-between;"> <span>Inches Feet</span> <span>Feet Feet</span> </div>			
	<div style="display: flex; justify-content: space-between;"> <span>Inches Feet</span> <span>Feet Feet</span> </div>			
<b>CASING SCHEDULE</b>				
Size O.D. (Inches)	Weight/ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
2	PVC	Schedule 80	+2	25
<b>Perforations:</b>				
Type of perforation		Mill Slot		
Size of perforation		0.03		
From	12 1/2	feet to	22 1/2	feet
From		feet to		feet
From		feet to		feet
From		feet to		feet
From		feet to		feet
<b>Annular Seal: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</b>				
<input checked="" type="checkbox"/> Neat Cement	0	to	10	<input checked="" type="checkbox"/> Pumped <input type="checkbox"/> Poured
<input type="checkbox"/> Cement Grout		to		<input type="checkbox"/> Pumped <input type="checkbox"/> Poured
<input type="checkbox"/> Concrete Grout		to		<input type="checkbox"/> Pumped <input type="checkbox"/> Poured
<input type="checkbox"/> ≥30% Bentonite Grout		to		<input type="checkbox"/> Pumped <input type="checkbox"/> Poured
Gravel Pack: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		10	to	23
				<input checked="" type="checkbox"/> Pumped <input type="checkbox"/> Poured
<b>Type: 8 X 16</b>				
Bentonite Chips: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		23	to	26
				<input type="checkbox"/> Pumped <input checked="" type="checkbox"/> Poured

Type: **3/8 Hole Plug**

10. **DRILLER'S CERTIFICATION**  
This well was drilled under my supervision and the report is true to the best of my knowledge.  
Name Hydro Resources Nevada, Inc. dba Humboldt Drilling & Pump  
Contractor

Address 4975 W. Winnemucca Blvd.  
Contractor  
Winnemucca, Nevada 89445  
Nevada contractor's license number  
issued by the State Contractors Board 56797  
Nevada driller's license number issued by the  
Division of Water Resources, the on-site driller 2177  
Signed Judi Leach, Office  
By driller performing actual drilling on site or contractor  
Date 9/18/2007

USE ADDITIONAL SHEETS IF NECESSARY



**STATE OF NEVADA  
DIVISION OF WATER RESOURCES  
WELL DRILLER'S PLUGGING REPORT**



OFFICE USE ONLY  
Log No. 104291  
Permit No. \_\_\_\_\_  
Basin 108

PRINT OR TYPE ONLY  
DO NOT WRITE ON BACK

Please complete this form in its entirety in  
accordance with NRS 534.170 and NAC 534.340

NOTICE OF INTENT NO. 60075

1 OWNER <u>Lyon County Utilities</u>		ADDRESS AT WELL LOCATION <u>314 Virginia Street</u>	
MAILING ADDRESS <u>18 Highway 95A North, Yerington, NV</u>		<u>Yerington, NV</u>	
Subdivision Name: _____		County: <u>Lyon</u>	
2 LOCATION <u>SE 1/4 SW 1/4 Sec 28 T 14 N S R 25 E</u>	Latitude <u>39°26'18"N</u>	UTM E <input checked="" type="checkbox"/> NAD 27	
PERMIT/AWAIVER No. <u>NEV 40039</u> <u>014-241-13</u>	Longitude <u>119°11.821'W</u>	N <input type="checkbox"/> NAD 83/WGS 84	
Issued by Water Resources		Parcel No. _____	

3	TYPE OF WELL <input type="checkbox"/> Domestic <input type="checkbox"/> Municipal/Industrial	<input type="checkbox"/> Irrigation <input checked="" type="checkbox"/> Monitor	<input type="checkbox"/> Test <input type="checkbox"/> Stock	Is this well being plugged because a replacement well was drilled? <u>Yes</u> If yes, what is replacement well NOI? <u>60076</u>	Is there an existing well log? <u>YES</u> If yes, what is NDWR well log #? <u>99901</u>
---	--	--	---	---	--

4 EXISTING WELL CONSTRUCTION				
Depth Drilled	<u>25</u> Feet	Depth Cased	<u>25</u> Feet	
EXISTING CASING SCHEDULE				
Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
<u>2</u>	<u>PVC</u>	<u>SCHED 40</u>	<u>+1</u>	<u>25</u>

Existing Perforations:				
Type of perforation	Size of perforation	FAC	From	To
		<u>0.02</u>		
From	<u>15</u>	feet to	<u>25</u>	feet
From		feet to		feet
From		feet to		feet
From		feet to		feet
From		feet to		feet

5 WATER LEVEL			
Static water level	<u>16</u>	feet below land surface	
Artesian flow		G.P.M.	P.S.I.
Water temperature		° F	Quality

6	Additional Notes or Comments
---	------------------------------

7 WELL PLUGGING PROCEDURE			
Was well cleaned out to total depth? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no			
If well was not cleaned out to total depth, please explain why: _____			
Was the well contaminated? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no			
Was the casing pulled? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no			
Was the casing over drilled? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no			
If casing was left in place, please show where additional perforations were made: Additional Perforations: _____			
Type of perforator used: <u>N/A</u>			
From	feet to	feet	Number of perms per linear foot
From	feet to	feet	Number of perms per linear foot
From	feet to	feet	Number of perms per linear foot
From	feet to	feet	Number of perms per linear foot
From	feet to	feet	Number of perms per linear foot
From	feet to	feet	Number of perms per linear foot

8 WELL PLUGGING MATERIALS			
Material Used			
From	<u>0</u>	feet to	<u>25</u> feet
From		feet to	
From		feet to	
From		feet to	
From		feet to	
From		feet to	

Neat Cement Fluid Weight	lbs/gal
Bentonite Grout	% bentonite
Date Started	<u>7/18/2007</u>
Date Completed	<u>7/18/2007</u>

9 DRILLER'S CERTIFICATION	
This well was plugged and abandoned under my supervision and the report is true to the best of my knowledge.	
Name	<u>Humboldt Drilling and Pump Co.</u>
Address	<u>4975 W. Winnemucca Blvd.</u>
	<u>Winnemucca, Nevada 89445</u>

Nevada contractor's license number	<u>56797</u>
issued by the State Contractor's Board	
Nevada driller's license number issued by the	<u>2177</u>
Division of Water Resources, the on-site driller	

Signed	<u>Judi Leach, Office</u>
Date	<u>9/18/2007</u>

RECEIVED  
2007 SEP 20 AM 10:41  
STATE ENGINEERS OFFICE

N 39.043633  
W 119.197617 NAD 27

USE ADDITIONAL SHEETS IF NECESSARY

**STATE OF NEVADA  
DIVISION OF WATER RESOURCES  
WELL DRILLER'S PLUGGING REPORT**



OFFICE USE ONLY  
Log No. 104622  
Permit No. \_\_\_\_\_  
Basin 108

PRINT OR TYPE ONLY  
DO NOT WRITE ON BACK

Please complete this form in its entirety in  
accordance with NRS 534.170 and NAC 534.340

NOTICE OF INTENT NO. 60074

1 OWNER Lyon County Utilities  
MAILING ADDRESS 18 Highway 95A North, Yerington, NV  
89447

ADDRESS AT WELL LOCATION 314 Virginia Street  
Yerington, NV

2 LOCATION SE 1/4 SW 1/4 Sec 28 T 14 N R 25 E  
PERMIT/WAIVER No. NEV 40039 014-241-13  
Issued by Water Resources Parcel No. \_\_\_\_\_

Subdivision Name: \_\_\_\_\_ County: Lyon  
Latitude 39°2'6.18"N UTM E ☒ NAD 27  
Longitude 119°11'58.4"W N ☐ NAD 83/WGS 84

3 TYPE OF WELL  
☐ Domestic ☐ Irrigation ☐ Test  
☐ Municipal/Industrial ☒ Monitor ☐ Stock

Is this well being plugged because a  
replacement well was drilled? Yes  
If yes, what is replacement well NO? 60076

Is there an existing well log? YES  
If yes, what is NDWR well log #? 99902

4 EXISTING WELL CONSTRUCTION  
Depth Drilled 25 Feet Depth Cased 25 Feet  
EXISTING CASING SCHEDULE  
Size O.D. (Inches) Weight (Pounds) Wall Thickness (Inches) From (Feet) To (Feet)  
2 PVC SCHED 40 +1 25

Existing Perforations:  
Type of perforation FAC  
Size of perforation 0.02  
From 15 feet to 25 feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet

7 WELL PLUGGING PROCEDURE  
Was well cleaned out to total depth? ☒ yes ☐ no  
If well was not cleaned out to total depth, please explain why: \_\_\_\_\_

Was the well contaminated? ☐ yes ☒ no  
Was the casing pulled? ☐ yes ☒ no  
Was the casing over drilled? ☐ yes ☒ no  
If casing was left in place, please show where additional perforations were made:  
Additional Perforations: \_\_\_\_\_

Type of perforator used: N/A  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet Number of perfs per linear foot \_\_\_\_\_  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet Number of perfs per linear foot \_\_\_\_\_  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet Number of perfs per linear foot \_\_\_\_\_  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet Number of perfs per linear foot \_\_\_\_\_  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet Number of perfs per linear foot \_\_\_\_\_  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet Number of perfs per linear foot \_\_\_\_\_

5 WATER LEVEL  
Static water level 16 feet below land surface  
Artesian flow \_\_\_\_\_ G.P.M. \_\_\_\_\_ P.S.I.  
Water temperature \_\_\_\_\_ ° F Quality \_\_\_\_\_

8 WELL PLUGGING MATERIALS  
Material Used  
From 0 feet to 25 feet NEAT CEMENT ☒ Pumped ☐ Poured  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet ☐ Pumped ☐ Poured  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet ☐ Pumped ☐ Poured  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet ☐ Pumped ☐ Poured  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet ☐ Pumped ☐ Poured  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet ☐ Pumped ☐ Poured

6 Additional Notes or Comments

Neat Cement Fluid Weight \_\_\_\_\_ lbs/gal  
Bentonite Grout \_\_\_\_\_ % bentonite  
Date Started 7/18/2007  
Date Completed 7/18/2007

9 DRILLER'S CERTIFICATION

This well was plugged and abandoned under my supervision and the report is true  
to the best of my knowledge.

Name Humboldt Drilling and Pump Co.  
Contractor

Address 4975 W. Winnemucca Blvd.  
Contractor

Winnemucca, Nevada 89445

Nevada contractor's license number \_\_\_\_\_  
issued by the State Contractor's Board 56797

Nevada driller's license number issued by the  
Division of Water Resources, the on-site driller 2177

Signed Judi Seach, Office  
By driller performing actual drilling on site or contractor

Date 9/18/2007

RECEIVED  
2007 SEP 20 AM 10:41  
STATE ENGINEER'S OFFICE

N 39.043632  
W 119.193067 NAD27





RESOURCES

I

STATE OF NEVADA  
DIVISION OF WATER RESOURCES  
WELL DRILLER'S REPORT

OFFICE USE ONLY  
Log No. 99903  
Permit No.  
Basin 108

NOTICE OF INTENT NO. 50781

ADDRESS AT WELL LOCATION:  
314 Virginia St.  
Vernon, N.Y. 89447  
N 25° 2' 43" E 119° 11' 35" W  
County  
Subdivision Name

5. WELL TYPE  
☐ Cable ☐ Rotary ☐ RVC  
☐ Air ☒ Other *Auger*

8. WELL CONSTRUCTION

Depth Drilled 25 Feet Depth Cased 25 Feet

HOLE DIAMETER (BIT SIZE)

B Inches From 0 Feet To 25 Feet

   Inches    Feet    Feet

   Inches    Feet    Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
<u>2</u>	<u>PVC</u>	<u>SCH 40</u>	<u>0</u>	<u>25</u>

Perforations:

Type perforation Fac

Size perforation 22G

From 15 feet to 25 feet

From    feet to    feet

From    feet to    feet

From    feet to    feet

From    feet to    feet

Surface Seal: ☒ Yes ☐ No Seal Type: ☒ Neat Cement

Depth of Seal 15 ☐ Cement Grout

Placement Method: ☐ Pumped ☒ Poured ☐ Concrete Grout

Gravel Packed: ☒ Yes ☐ No

From 15 feet to 25 feet

9. WATER LEVEL

Static water level 112 feet below land surface

Artesian flow N/A G.P.M. P.S.I.

Water temperature cold °F Quality N/A

10. DRILLER'S CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Andresen Drilling Contractor

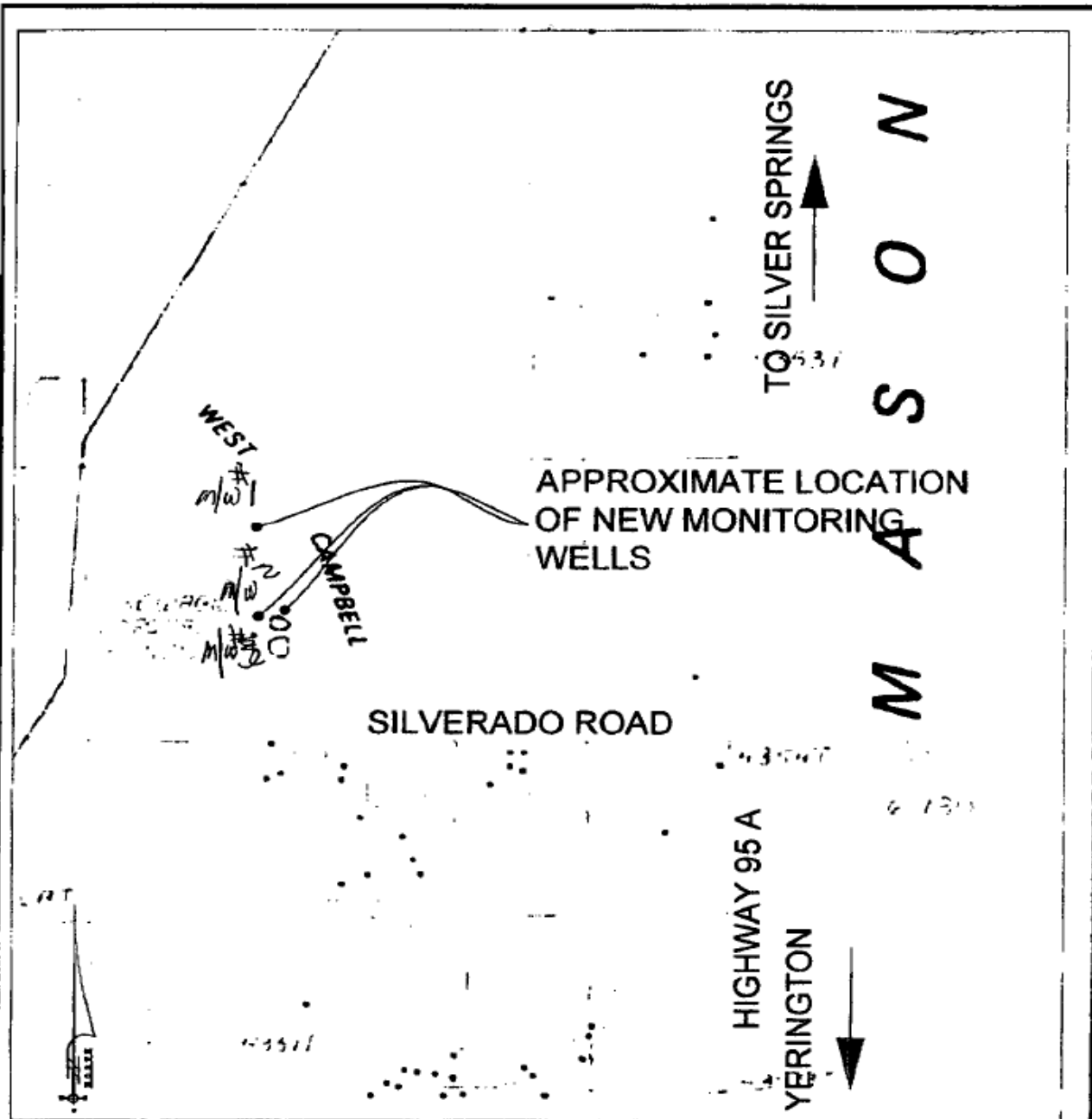
Address 1435 Belford rd. Contractor  
Reno, NV 89509

Nevada contractor's license number 34525  
issued by the State Contractor's Board

Nevada driller's license number issued by the  
Division of Water Resources, the on-site driller 1028

Signed [Signature]  
By driller performing actual drilling on site or contractor

Date 3/29/06

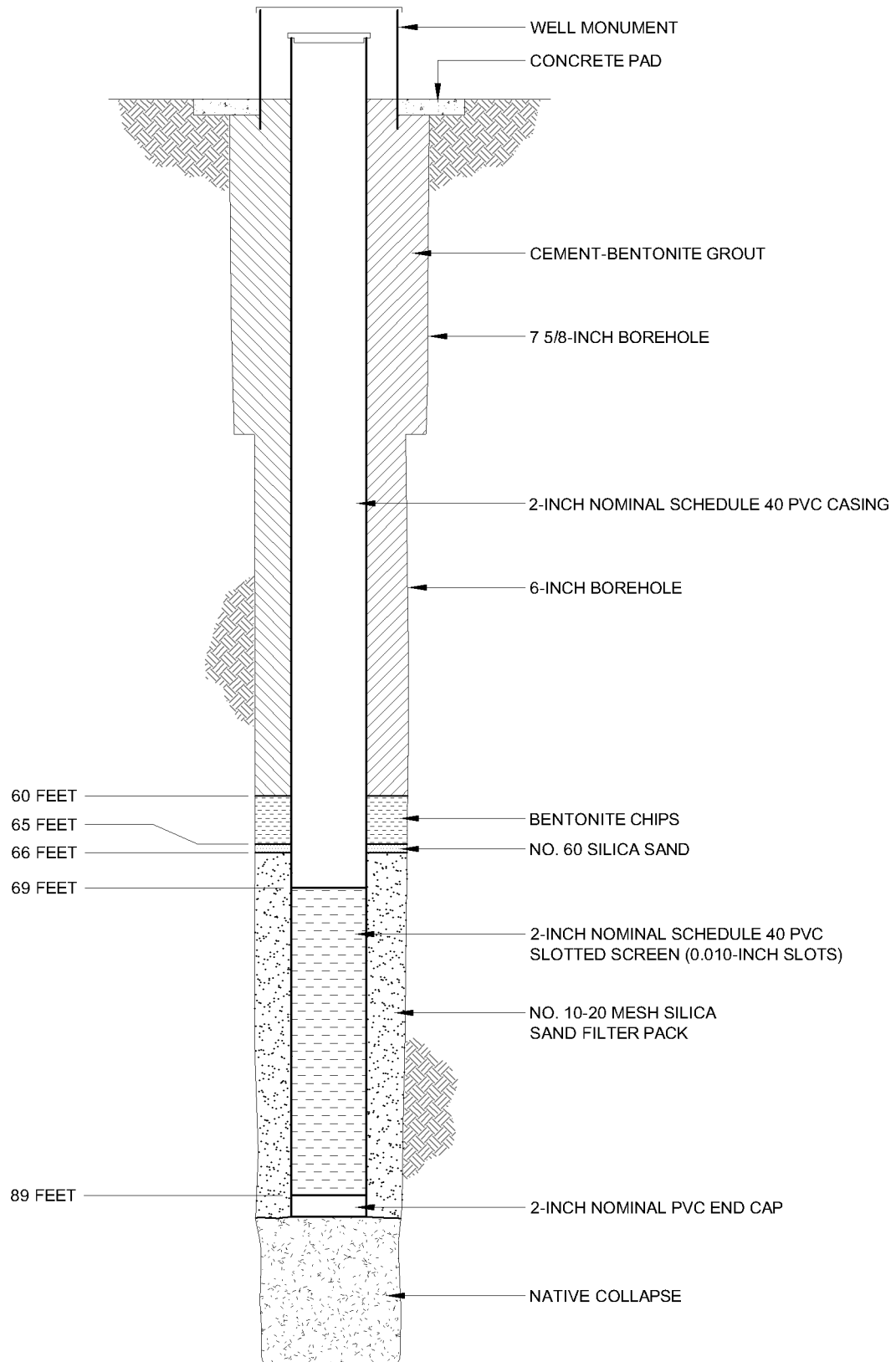


SCALE: 1" = 1000'

FARR WEST ENGINEERING  
1310 DALWOOD CT.  
RENO, NEVADA 89521  
PHONE: (775) 851-4788  
FAX: (775) 851-0786

LOCATION MAP  
PROPOSED MONITORING WELLS  
LYON COUNTY UTILITY DEPARTMENT

SHEET C2



NOT TO SCALE

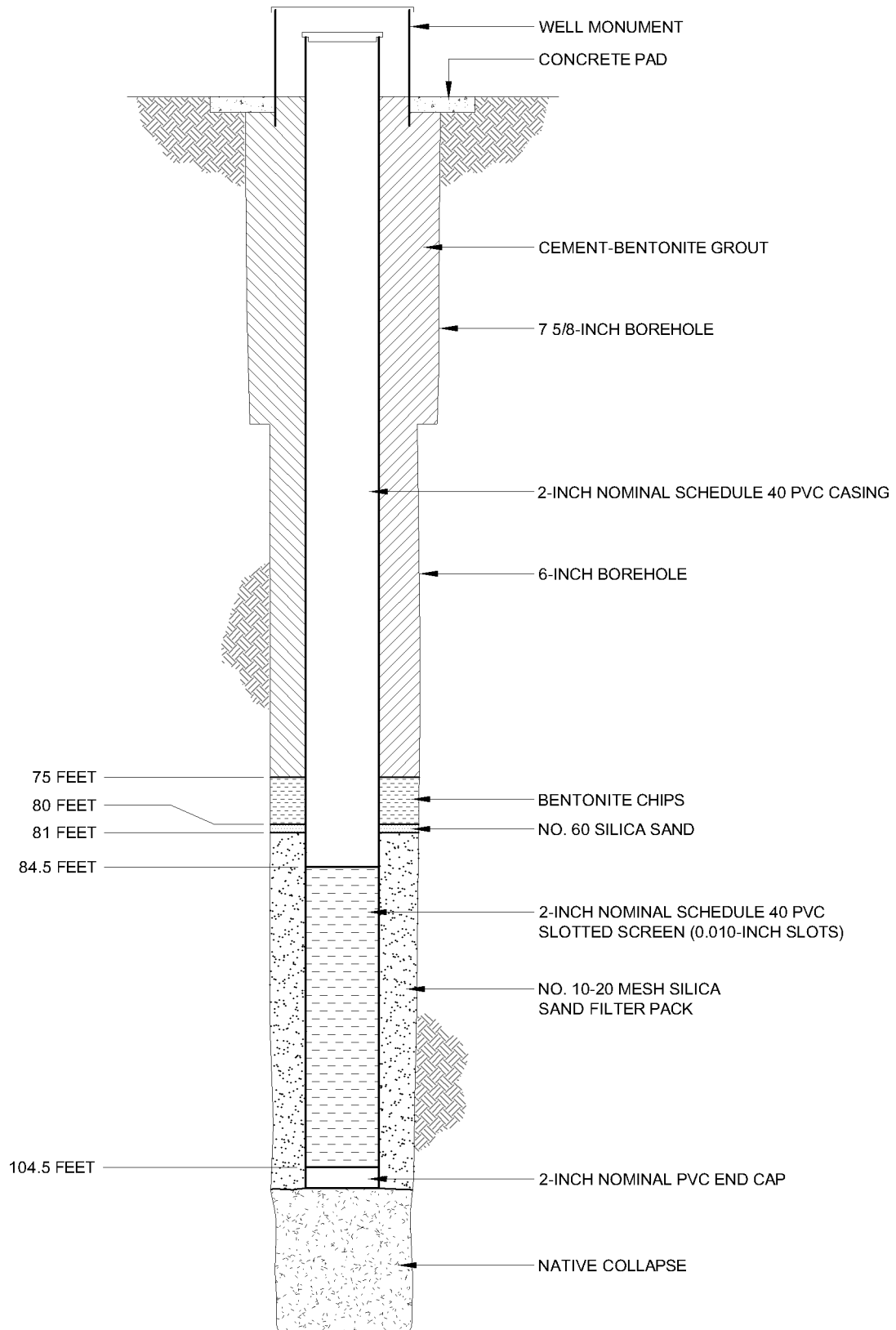
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-21  
Construction Details**



NOT TO SCALE

**BROWN AND  
CALDWELL**

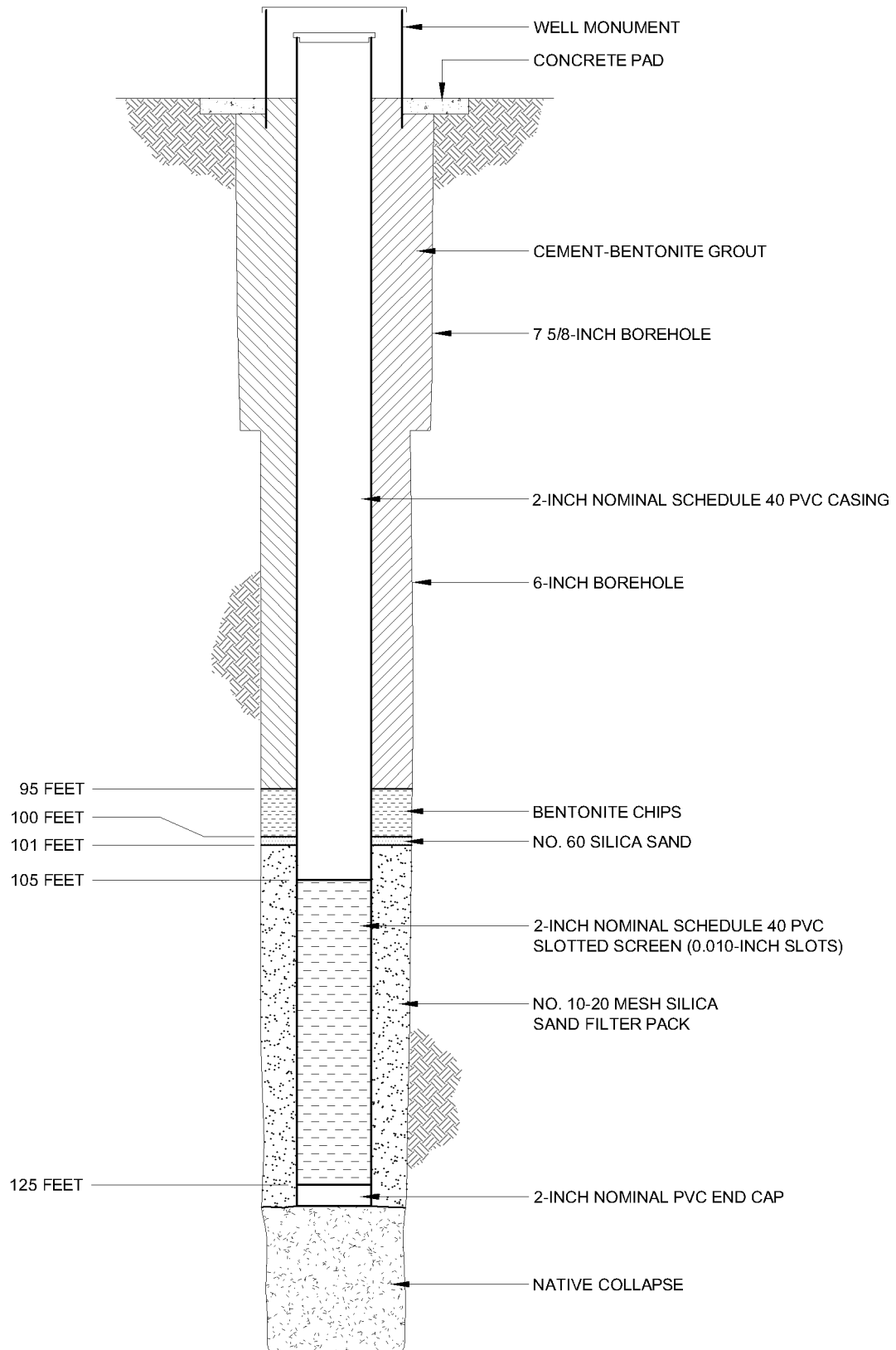
Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-31  
Construction Details**





NOT TO SCALE

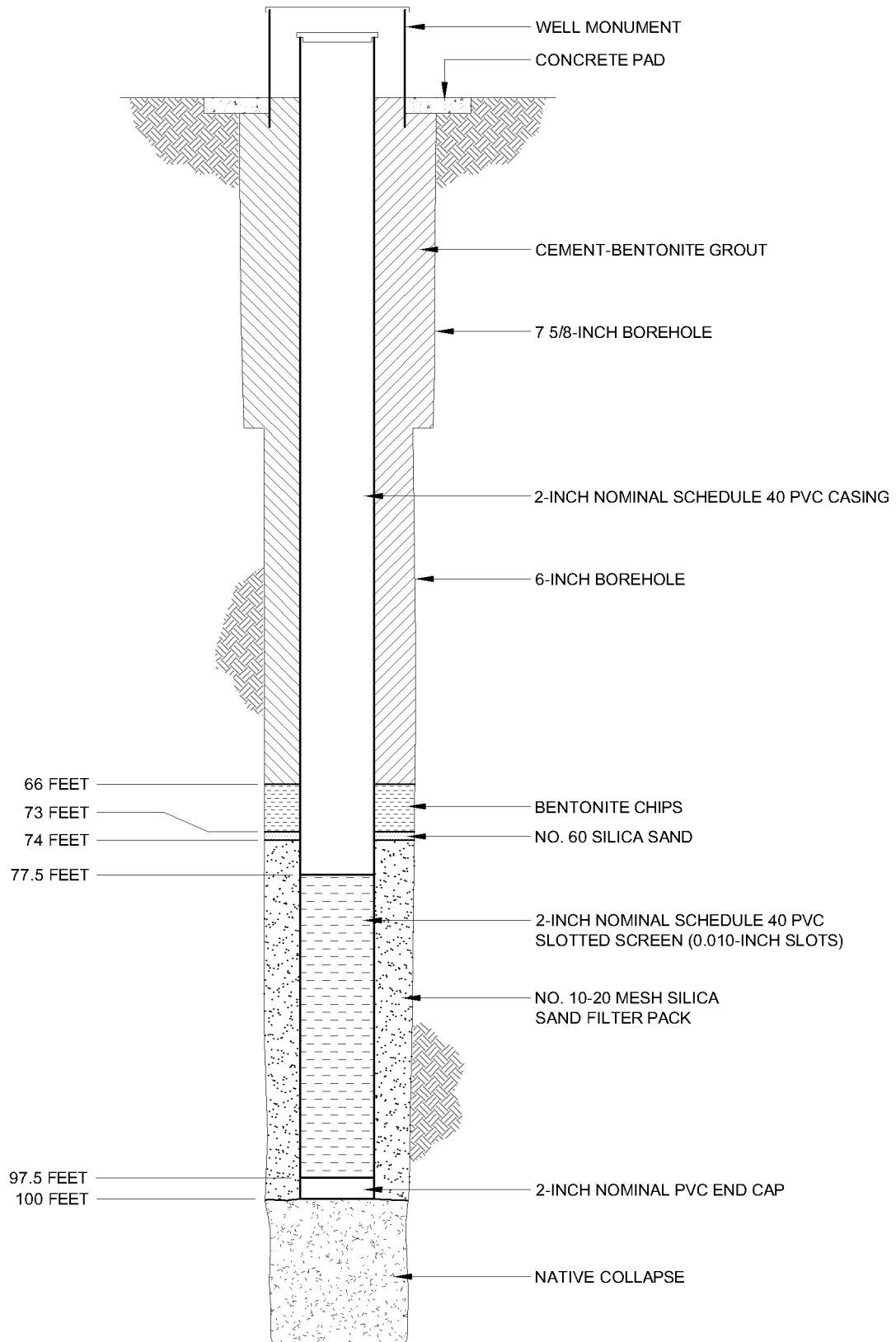
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-4I  
Construction Details**



NOT TO SCALE

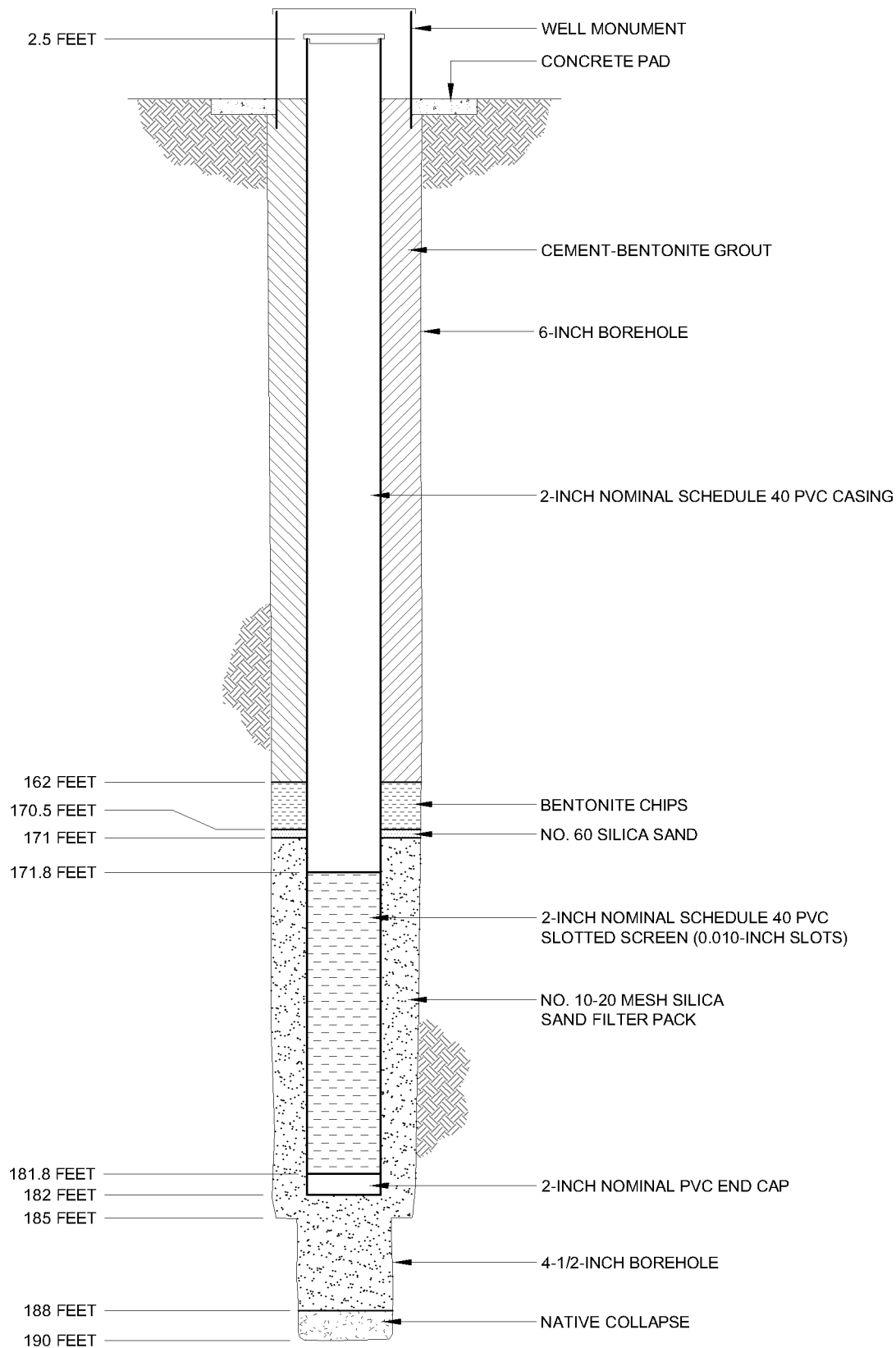
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-5RI  
Construction Details**



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: April 2006

Atlantic Richfield  
Company

Project: 129684

**Well B/W-6D  
Construction Details**

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 15

Boring Location: <b>West of mine tailings, along Locust Drive</b>		Elevation: <b>4431.5 feet amsl</b>	East: <b>319206.9</b> North: <b>1554968.4</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>B. Zamow</b>	Date Started: <b>9/23/05</b>	Date Finished: <b>9/26/05</b>
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>190.0</b>	Water Depth: (feet) <b>135' / 100.43</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>171.8-181.8 ft., bottom at 182.0 ft.</b>	
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>	Filter Material: <b>#10-20 Silica Sand</b>
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4430		SM	<b>SILTY SAND</b> (0-2 feet) Dry, loose to medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~15 mm and ~15% silt and clay. The gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
		SC	<b>CLAYEY SAND</b> (2-5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~30% silt and clay. The sand is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
5		SC	<b>SILTY SAND</b> (5-7 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
4425		SM	<b>SILTY SAND</b> (7-8 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak to strong reaction to HCl.					All depths are below land surface unless stated otherwise.
		SM	<b>SILTY SAND</b> (8-14 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					WELL DESIGN for B/W-6D: Screened Interval: 171.8-181.8 feet. Bottom of sump: 182 feet.
								Cement Grout: 0-162 feet. Bentonite Chips: 162-170.5 feet. Filter Pack: #60 Sand 170.5-171 feet, #10-20 Sand 171-188 feet. Native Collapse: 188-190 feet
								Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,434.01 feet, amsl. PVC Stick-up: 2.5 feet above land surface.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4420								
15		SM	<b>SILTY SAND</b> (14-16.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak to strong reaction to HCl.					
4415		SC	<b>CLAYEY SAND</b> (16.75-17.25 feet) Dry, dense, no odor. Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (17.25-19.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~6 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
20		SC	<b>CLAYEY SAND</b> (19.5-24 feet) Dry, dense, no odor. Primarily medium to fine sand with trace fine gravel to 8 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown to grayish brown, and have a strong reaction to HCl.					
4410								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 3 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25		SM	<b>SILTY SAND</b> (24-26 feet) Dry, dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4405	SM	<b>SILTY SAND</b> (26-30 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
30		CL	<b>SANDY LEAN CLAY</b> (30-31 feet) Dry, hard, no odor. Primarily silt and clay with ~50% medium to fine sand and trace coarse sand to ~3 mm. The sand is angular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
	4400	SC	<b>CLAYEY SAND</b> (31-31.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (31.5-32 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is subangular to subrounded. The fines have low plasticity and toughness, and are brown.					
		SC	<b>CLAYEY SAND</b> (32-32.75 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown, and have a strong reaction to HCl.					
35		SM	<b>SILTY SAND</b> (32.75-33.5 feet) Dry, very dense, no odor. Primarily medium to fine sand to ~2 mm with ~20% silt and clay. The sand is angular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (33.5-34 feet)					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
40	4395		Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 8 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl. <b>CLAYEY SAND</b> (34-35.75 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand to ~2 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. <b>SILTY SAND</b> (35.75-38.5 feet)					
		CL	Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (38.5-39 feet)					
		SM						
		SM	Dry, hard, no odor. Primarily silt and clay with ~50% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl. <b>SILTY SAND</b> (39-39.75 feet)					
		SM						
		CL	Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl. <b>SILTY SAND</b> (39.75-40.5 feet)					
	4390		Dry, very dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and are brown. <b>SILTY SAND</b> (40.5-41 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (41-43 feet)					
		CL	Dry, hard, no odor. Primarily silt and clay with ~45% medium to fine sand and trace fine gravel to ~5 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl. <b>CLAYEY SAND</b> (43-43.75 feet)					
45			Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (43.75-45.5 feet)					
		CL						
	4385	SM	Dry, hard, no odor. Primarily silt and clay with ~40% medium to fine sand with trace fine gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (45.5-46.5 feet)					
			Dry, no odor. Primarily silt and clay with ~45% medium to fine sand with trace fine gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/3), and have a strong reaction to HCl. <b>SILTY SAND with GRAVEL</b> (46.5-48 feet)					
		SM						
		SW-	Dry, very dense, no odor. Primarily coarse to medium sand with ~20% fine gravel to					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 5 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50	4380	SM	~15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SC	<b>SILTY SAND with GRAVEL</b> (46.5-48 feet)					
		SC	Dry, very dense, no odor. Primarily medium to fine sand with ~15% fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (49-49.5 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to 8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	<b>CLAYEY SAND</b> (49.5-50 feet)					
		SM	Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (50-51.5 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 8 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>SILTY SAND</b> (51.5-52.25 feet)					
55	4375		Dry, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 12 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>SILTY SAND</b> (40.5-41 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>CLAYEY SAND</b> (53-54.5 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			<b>CLAYEY SAND</b> (54.5-56 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown, and have a strong reaction to HCl.					
			<b>SILTY SAND</b> (56-60.5 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (60.5-62 feet)					
60	4370		Dry, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (62-63.5 feet)					



Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			Dry, very dense, no odor. Primarily medium to fine sand to ~1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (63.5-65 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to ~5 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
65		SW-SM	<b>WELL-GRADED SAND with SILT</b> (65-68.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have no reaction to a strong reaction to HCl.					
	4365							
		SM	<b>SILTY SAND</b> (68.75-75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
70								
	4360							
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (75-76 feet) Dry, dense, no odor.					
75								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 7 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
80	4355	SW-SM	Primarily medium to fine sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl. <b>WELL-GRADED SAND with SILT and GRAVEL</b> (76-80 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% fine gravel to ~15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
85	4350	SM	<b>SILTY SAND</b> (80-83 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
85		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (83-85 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% fine gravel to ~15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
85	4345	SW	<b>WELL-GRADED SAND</b> (85-87.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand to ~4 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (87.5-88.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to 8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 8 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
90		SM	are nonplastic, are brown, and have a strong reaction to HCl. <b>SILTY SAND</b> (88.5-90.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4340	SW	<b>WELL-GRADED SAND</b> (90.5-93.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 8 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
95		SM	<b>SILTY SAND</b> (93.5-94 feet) Dry, medium dense, no odor.					
		CL	Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl. <b>SANDY LEAN CLAY</b> (94-95 feet) Dry, hard, no odor.					
	4335	SM	Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl. <b>SILTY SAND with GRAVEL</b> (95-97.5 feet) Dry, very dense, no odor. Primarily sand with ~20% fine gravel to ~10 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (97.5-99 feet) Dry, hard, no odor. Primarily silt and clay with ~45% medium to fine sand and ~5% coarse sand to ~3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
100		SW-SM	<b>WELL-GRADED SAND with SILT</b> (99-102 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~5 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
	4330							

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒


Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
105	4325	CL	<b>SANDY LEAN CLAY</b> (102-102.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% sand and ~10% fine gravel to ~15 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are strong brown (7.5YR 4/6), and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND with GRAVEL</b> (102.5-105 feet) Dry to moist, very dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (105-107 feet) Moist (some saturated), medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (107-109 feet) Dry to moist, medium dense, no odor. Primarily coarse to medium sand with ~20% fine gravel to ~15 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
110	4320	SW-SM	<b>WELL-GRADED SAND with SILT</b> (109-110 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (110-111.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (111.5-116 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have no reaction to a weak reaction to HCl.					

# BORING LOG

Well Number: B/W-6

Monitoring Well 

**121243.021**

Sheet 10 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115								
4315		SM	<b>SILTY SAND</b> (116-116.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND</b> (116.5-117.5 feet) Dry to moist, dense, no odor.					
		SM	Primarily medium to fine sand with ~15% coarse sand to 4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>SILTY SAND</b> (117.5-119 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to 8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
120			<b>WELL-GRADED SAND with SILT</b> (119-121.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4310		SM	<b>SILTY SAND</b> (121.5-125 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
125		SC	<b>CLAYEY SAND</b> (125-128 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
4305								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 11 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
130	4300	SM	<b>SILTY SAND with GRAVEL</b> (128-134 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~15% fine gravel to ~15 mm and ~15% silt and clay. The sand is angular to subangular, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
135		CL	<b>SANDY LEAN CLAY</b> (134-135 feet) Dry, hard, no odor. Primarily silt and clay with ~50% medium to fine sand and trace fine gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are weak red (2.5YR 5/4), and have a strong reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (135-136 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
	4295	SW	<b>WELL-GRADED SAND with GRAVEL</b> (136-139 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~25% gravel to ~40 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (139-139.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
140		SC	<b>CLAYEY SAND with GRAVEL</b> (136.5-143 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~50					

B/W-6 @ 135 - 140 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 12 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4290			mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and low toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (143-143.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (143.5-144 feet) Dry to moist, dense, no odor.					
145		SM	Primarily medium to fine sand with trace fine gravel to ~5 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>SILTY SAND</b> (144.5-145 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4285			<b>CLAYEY SAND</b> (145-149 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~15 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (149-153 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to ~30 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a weak to strong reaction to HCl.					
150								
4280								
		SM	<b>SILTY SAND</b> (153-157 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to ~10 mm and ~30% silt and clay. The sand is subangular to					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 13 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155	4275		subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (157-160 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine gravel to ~15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
160	4270	SM	<b>SILTY SAND</b> (160-162.5 feet) Moist with saturated seams, dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have no reaction to a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (162.5-164.5 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have no reaction to a strong reaction to HCl.					
165		CL	<b>SANDY LEAN CLAY</b> (164.5-165 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to ~30 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a weak to strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (165-166.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% fine gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are reddish brown (5YR					
	4265	SC						

B/W-6 @ 156 - 161 Ft.



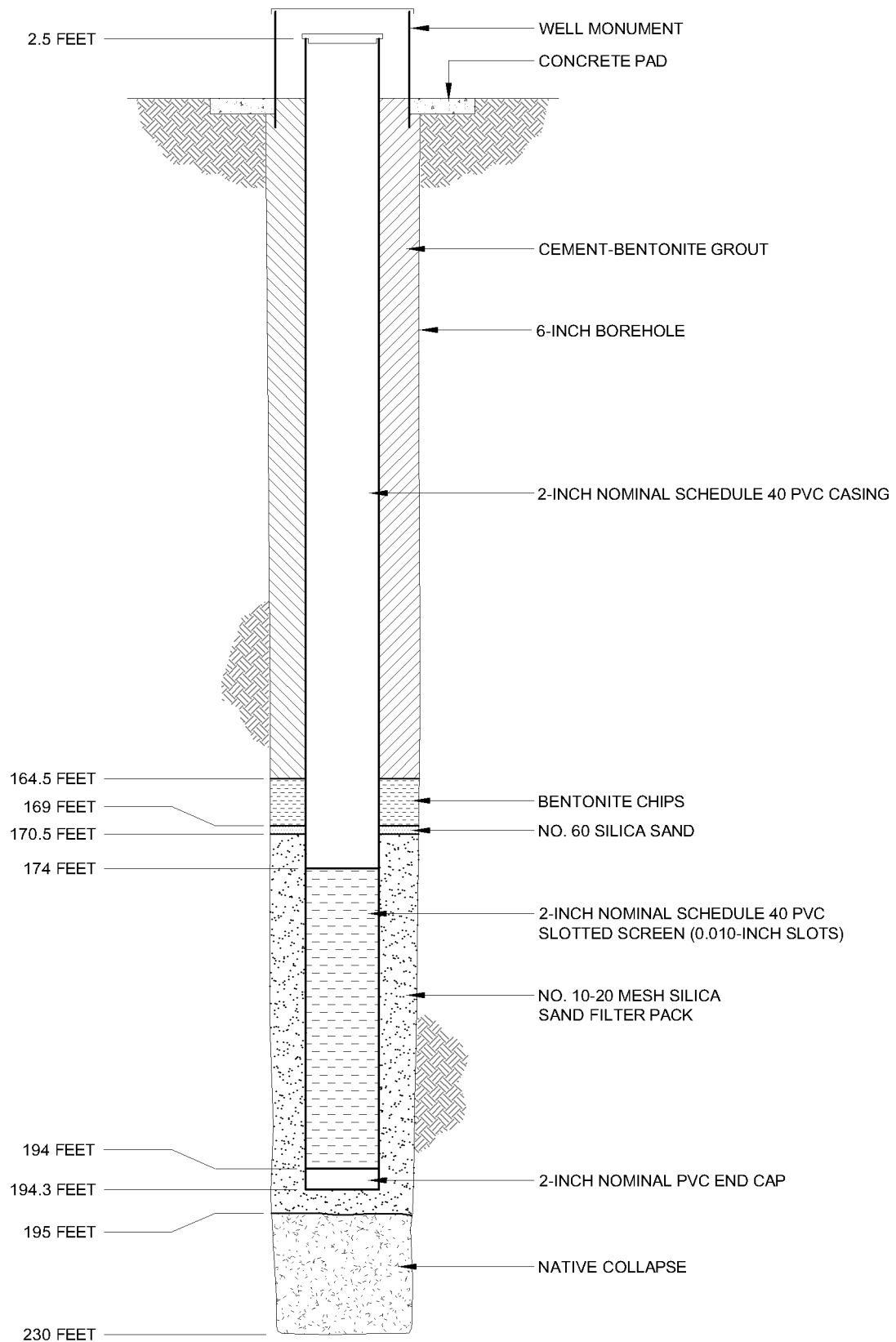
Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 14 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
170	4260	SC	<p>5/4), and do not react to HCl.</p> <p><b>CLAYEY SAND with GRAVEL</b> (166.5-168 feet) Moist, medium dense, no odor. Primarily sand with ~30% gravel to ~75 mm and ~40% silt and clay. The sand and gravel are subangular. The fines have medium plasticity and toughness, are reddish brown, and do not react to HCl.</p> <p><b>CLAYEY SAND with GRAVEL</b> (168-174 feet) Dry to moist, dense, no odor. Primarily sand with ~20% gravel to ~25 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. Interval is cobble penetrated from 172.5 to 173 feet.</p>					
175		SC	<b>CLAYEY SAND</b> (174-175 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~20 mm and ~40% silt and clay. The sand is angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (175-175.5 feet) Dry, very dense, no odor.					
		GC	Primarily sand with ~10% fine gravel to ~10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to a strong reaction to HCl.					
	4255	GW-GM	<b>CLAYEY GRAVEL with SAND</b> (175.5-176 feet) Dry to moist, dense, no odor. Predominately gravel to ~50 mm with ~30% sand and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		GC	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (176-177.25 feet) Saturated, medium dense, no odor. Predominately gravel to ~40 mm with ~15% coarse sand and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>CLAYEY GRAVEL with SAND</b> (177.25-179 feet) Moist, dense, no odor. Predominately gravel to 30 mm with ~20% sand and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			<b>WEATHERED TUFF</b> (179-181 feet)					

B/W-6 @ 174 - 179 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-6Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 15 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4250			Dry to moist, very hard, no odor. Weathered tuff with ~50% fines. The weathered tuff is angular to subangular, to ~30mm. The fines have medium plasticity and toughness, are light yellowish brown (2.5Y 6/3) to pale yellow (2.5Y 7/3), and have a strong reaction to HCl.					
185			<b>WEATHERED TUFF</b> (182.5-183.25 feet) Dry, very hard, no odor. Weathered tuff with ~50% fines. The weathered tuff is angular to subangular, to ~30mm. The fines have medium plasticity and toughness, are light yellowish brown (10YR 6/4), and do not react to HCl.					
			<b>WEATHERED TUFF</b> (183.25-185 feet) Dry, very dense, no odor. Weathered tuff with ~20% fines. The weathered tuff is angular to subangular, to ~75mm. The fines have medium plasticity and toughness, are light yellowish brown, and do not react to HCl. Six-inch cobble at ~185 feet.					
4245			<b>WEATHERED TUFF</b> (185.5-188 feet) Dry to moist, very hard, no odor. Weathered tuff with ~80% fines. The weathered tuff is angular to subangular, to ~2mm. The fines have medium plasticity and toughness, are light gray (10YR 7/2), and do not react to HCl.					
			<b>WEATHERED TUFF</b> (188-189 feet) Dry, very hard, no odor. Weathered tuff with ~50% fines. The weathered tuff is angular to subangular, to ~30mm. The fines have medium plasticity and toughness, are light yellowish brown (10YR 6/4), and do not react to HCl.					
190			NO RECOVERY					



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: April 2006

Atlantic Richfield  
Company

Project: 129684

**Well B/W-7D  
Construction Details**

Project Name: Yerington Groundwater InvestigationWell Number: B/W-7Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 18

Boring Location: <b>Northwest of mine tailings, on haul road</b>		Elevation: <b>4478.7 feet amsl</b>	East: <b>317572</b> North: <b>1560229.1</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>B. Zamow</b>	Date Started: <b>8/6/05</b>	Date Finished: <b>8/14/05</b>
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>230.0</b>	Water Depth: (feet) <b>180' / 149.71</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>174.1-194.1 ft., bottom at 194.3 ft.</b>	
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>	Filter Material: <b>#10-20 Silica Sand</b>
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	<b>SILTY SAND with GRAVEL</b> (0-2 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to ~12 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
		SW-SM	<b>WELL-GRADED SAND with SILT AND GRAVEL</b> (2-3 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~30 mm and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (3-3.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~25 mm, ~15% fine sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
4475		NR	<b>NO RECOVERY</b> (3.5-5 feet)					All depths are below land surface unless stated otherwise.
5		SM	<b>SILTY SAND</b> (5-6 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~30 mm, ~15% coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					WELL DESIGN for B/W-7: Screened Interval: 174-194 feet. Bottom of sump: 194.25 feet.
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (6-8.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~30 mm, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, yellowish brown, and have a weak reaction to HCl.					Cement Grout: 0-164.5 feet. Bentonite Chips: 164.5-169 feet. Filter Pack: #60 Sand 169-170.5 feet, #10-20 Sand 170.5-195 feet. Native Collapse: 195-230 feet
4470		SC	<b>CLAYEY SAND</b> (8.5-16 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~25 mm, ~15% fine sand, and ~30% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,481.21 feet, amsl. PVC Stick-up: 2.5 feet above land surface.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4465								
15								
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (16-17.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~40 mm, ~15% fine sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		GM	<b>SILTY GRAVEL with SAND</b> (17.5-18.5 feet) Dry, medium dense, no odor. Primarily gravel to ~30 mm, ~30% coarse to fine sand, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
4460		SW-SM	<b>WELL-GRADED SAND with SILT</b> (18.5-20 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~40 mm, ~15% fine sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
20		SM	<b>SILTY SAND</b> (20-22 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~20 mm, ~15% fine sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (22-23 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~20 mm, ~15% fine sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25	4455	CL	subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
			<b>SANDY LEAN CLAY</b> (23-24 feet) Dry, dense, no odor.					
		SM	Primarily silt and clay with trace amounts of gravel to ~15 mm, trace amounts of coarse sand, and ~35% medium to fine sand. The sand is subangular to subrounded and the gravel is subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.					
			<b>SILTY SAND</b> (24-26.5 feet) Dry, medium dense, no odor.					
30	4450	SM	Primarily coarse to fine sand with ~5% gravel to ~10 mm, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>SILTY SAND</b> (26.5-27.5 feet) Dry, dense, no odor.					
			Primarily coarse to medium sand with ~5% gravel to ~20 mm, ~15% fine sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
			<b>CLAYEY SAND</b> (27.5-29 feet) Dry, dense, no odor.					
35	4445	SM	Primarily medium to fine sand with ~5% gravel to ~10 mm and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and medium to low toughness, brown, and have a strong reaction to HCl.					
		SW-SM	<b>SILTY SAND</b> (29-30 feet) Dry, dense, no odor.					
			Primarily coarse to medium sand with ~5% gravel to ~30 mm, ~15% fine sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a weak reaction to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (30-31.5 feet) Dry, dense, no odor.					
40	4445	SM	Primarily coarse to medium sand with ~10% gravel to ~40 mm and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (31.5-32.5 feet) Dry, dense, no odor.					
			Primarily coarse to medium sand with ~5% gravel to ~30 mm, ~15% fine sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a weak reaction to HCl.					
			<b>SILTY SAND</b> (32.5-33.5 feet) Dry, dense, no odor.					
45	4445	SW-SM	Primarily coarse to medium sand with ~10% gravel to ~20 mm and ~15% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (33.5-35 feet) Dry, dense, no odor.					
			Primarily coarse to medium sand with ~10% gravel to ~40 mm and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a weak reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (35-37 feet) Dry, hard, no odor.					
50	4445		Primarily coarse to medium sand with ~10% gravel to ~60 mm and ~35% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish-brown (10 YR 4/2), and					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (37-41 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~50 mm, ~15% fine sand, and ~25% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
4440								
40								
		SC	<b>CLAYEY SAND</b> (41-42.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~60 mm and ~35% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10 YR 4/2), and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (42.5-46 feet) Dry, very hard, no odor. Primarily silt and clay with trace amounts of gravel to ~12 mm, ~30% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
4435								
45								
		SM	<b>SILTY SAND with GRAVEL</b> (46-47.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~40 mm and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (47.5-49 feet) Dry, hard, no odor. Primarily silt and clay with ~5% gravel to ~30 mm, ~30% medium to fine sand, and ~15% coarse sand. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are yellowish-brown (10 YR 5/4), and have a weak to strong reaction to HCl.					
4430								
		SM	<b>SILTY SAND with GRAVEL</b> (49-50 feet)					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50		CL	Dry, dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~40 mm and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (50-54 feet)					
	4425		Dry, hard, no odor. Primarily silt and clay with ~5% gravel to ~20 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand and gravel is subangular. The fines have medium plasticity and toughness, are pale brown (10 YR 6/3), and have a strong reaction to HCl.					
55		SM	<b>SILTY SAND</b> (54-55 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (55-56 feet) Dry, hard, no odor. Primarily silt and clay with trace amounts of gravel to ~8 mm, ~35% medium to fine sand, and trace amounts of coarse sand. The sand and gravel is subangular to sub rounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5 Y 4/2), and have a strong reaction to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (56-57 feet) Dry, dense, no odor.					
		SM	Primarily coarse to medium sand with ~15% gravel to ~30 mm, ~15% fine sand, and ~5% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
	4420	SM	<b>SILTY SAND</b> (57-58.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~25 mm and ~15% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
60			<b>SILTY SAND</b> (58.5-62.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~25 mm and ~15% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					



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Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
65	4415	SC	<b>CLAYEY SAND</b> (62.5-63 feet) Dry, dense, no odor.					
		SM	Primarily medium to fine sand with trace amounts of gravel to ~20 mm, and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	65	SM	<b>SILTY SAND</b> (63-64 feet) Dry, dense, no odor.					
		SM	Primarily medium to fine sand with trace amounts of gravel to ~10 mm and ~45% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SW-SM	<b>SILTY SAND</b> (64-65 feet) Dry, dense, no odor.					
		SW-SM	Primarily medium to fine sand with ~10% gravel to ~10 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
	4410	SM	<b>WELL-GRADED SAND with SILT</b> (65-66 feet) Dry, dense, no odor.					
		SM	Primarily coarse to medium sand with ~10% gravel to ~6 mm, ~15% fine sand, and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (66-67.5 feet) Dry, dense, no odor.					
		SM	Primarily coarse to medium sand with ~10% gravel to ~30 mm, ~15% fine sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, light brown, and have a strong reaction to HCl.					
70	4410	SM	<b>SILTY SAND</b> (67.5-69 feet) Dry, dense, no odor.					
		SM	Primarily coarse to medium sand with ~10% gravel to ~25 mm and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
	70	SM	<b>SILTY SAND with GRAVEL</b> (69-71.5 feet) Dry, dense, no odor.					
		SM	Primarily coarse to medium sand with ~15% gravel to ~40 mm and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (71.5-72 feet) Dry, dense, no odor.					
		CL	Primarily coarse to medium sand with ~5% gravel to ~20 mm, ~20% fine sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
4405	4405	CL	<b>SANDY LEAN CLAY</b> (72-73 feet) Dry, hard, no odor.					
		CL	Primarily silt and clay with trace amounts of gravel to ~15 mm, ~45% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
	75	CL	<b>SANDY LEAN CLAY</b> (73-74.5 feet) Dry, hard, no odor.					
		SW-SM	Primarily silt and clay with trace amounts of gravel to ~6 mm, and ~30% medium to fine sand. The sand is subangular to sub rounded and gravel is subangular. The fines have medium plasticity and toughness, are very dark grayish brown (2.5 Y 3/2), and have a strong reaction to HCl.					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	<b>WELL-GRADED SAND with SILT</b> (74.5-75.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~20 mm and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SW-SM	<b>SILTY SAND</b> (75.5-76.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~20 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SM	<b>WELL-GRADED SAND with SILT</b> (76.5-75.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~20 mm and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
4400			<b>SILTY SAND with GRAVEL</b> (75.5-82 feet) Dry, dense, no odor. Primarily medium to fine sand with ~20% gravel to ~15 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
80								
		CL	<b>SANDY LEAN CLAY</b> (82-83 feet) Dry, hard, no odor. Primarily silt and clay with trace amounts of gravel to ~6 mm, and ~30% medium to fine sand. The sand is subangular to sub rounded and gravel is subangular. The fines have medium plasticity and toughness, are very dark grayish brown (2.5 Y 3/2), and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (83-88.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~15 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
4395								
85								

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
90	4390	CL	<b>SANDY LEAN CLAY</b> (88.5-89.75 feet) Dry, hard, no odor. Primarily silt and clay with trace amounts of gravel to ~15 mm, ~50% medium to fine sand, and trace amounts of coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, (10YR 4/4) dark yellowish brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (89.75-91 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~25 mm and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a weak reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (91-92 feet) Dry, hard, no odor. Primarily silt and clay with trace amounts of gravel to ~6 mm, and ~30% medium to fine sand. The sand is subangular to sub rounded and gravel is subangular. The fines have medium plasticity and toughness, are very dark grayish brown (2.5 Y 3/2), and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (92-94.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~25 mm, ~15% fine sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
95	4385							
		CL	<b>SANDY LEAN CLAY</b> (94.5-95 feet) Dry, very hard, no odor. Primarily silt and clay with ~45% medium to fine sand to ~2 mm. The sand is subangular to sub- rounded. The fines have medium plasticity and toughness, (10YR 4/3) brown, and have a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (95-95.5 feet) Dry, very dense, no odor.					
		CL	Primarily coarse to medium sand with ~10% gravel to ~15 mm, ~15% fine sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a weak reaction to HCl.					
100		SM	<b>SANDY LEAN CLAY</b> (95.5-96 feet) Dry, very hard, no odor. Primarily silt and clay with ~5% gravel to ~20 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, (7.5YR 5/3) brown, and have a strong reaction to HCl.					
			<b>SANDY LEAN CLAY</b> (96-96.75 feet) Dry, hard, no odor. Primarily silt and clay with trace amounts of gravel to ~6 mm, and ~30% medium to fine sand. The sand is subangular to sub rounded and gravel is subangular. The fines have medium plasticity and toughness, are very dark grayish brown (2.5 Y 3/2), and have a strong reaction to HCl.					
	4380							
		SM	<b>SILTY SAND</b> (96.75-99.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~50 mm and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
			<b>SILTY SAND</b> (99.5-101 feet) Dry, very dense, no odor.					
		CL	Primarily coarse to medium sand with trace amounts of gravel to ~15 mm, ~15% fine sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
105	4375	SW-SM	subangular. The fines are nonplastic, brown, and have a weak reaction to HCl. <b>SANDY LEAN CLAY</b> (101-101.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~10% coarse sand to ~4.5 mm, and ~35% medium to fine sand. The sand is subangular to sub rounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5 Y 4/2), and have a weak reaction to HCl.					
		CL	<b>WELL-GRADED SAND with SILT</b> (101.5-103.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~15 mm, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SW-SM						
		CL	<b>GRAVELLY LEAN CLAY with SAND</b> (103.5-104 feet) Dry, very hard, no odor. Primarily silt and clay with ~30% gravel to ~20 mm, and ~20% coarse to fine sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
		CL						
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (104-104.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~15 mm, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
			<b>SANDY LEAN CLAY</b> (104.5-105 feet) Dry, very hard, no odor. Primarily silt and clay with ~5% gravel to ~12 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
		CL						
			<b>SANDY LEAN CLAY</b> (105-105.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand to ~1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and have a strong reaction to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (105.5-108 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~15 mm, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
110	4370	CL						
4365		SM	<b>SANDY LEAN CLAY</b> (108-110 feet) Dry, very hard, no odor. Primarily silt and clay with trace amounts of gravel to ~12 mm, and ~35% medium to fine sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
		SM						
			<b>SANDY LEAN CLAY</b> (110-110.75 feet) Dry, very hard, no odor. Primarily silt and clay with trace amounts of coarse sand to ~5 mm, and ~35% medium to fine sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, (10YR 5/2) grayish brown, and have a strong reaction to HCl.					
		SC						
			<b>SANDY LEAN CLAY</b> (110-110.75 feet) Dry, very hard, no odor. Primarily silt and clay with trace amounts of coarse sand to ~5 mm, and ~35% medium to fine sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, (10YR 5/2) grayish brown, and have a strong					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115			<p>reaction to HCl.</p> <p><b>SILTY SAND with GRAVEL</b> (111.25-112.5 feet)            Dry, dense, no odor.            Primarily coarse to medium sand with ~20% gravel to ~20 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.</p> <p><b>CLAYEY SAND with GRAVEL</b> (112.5-114 feet)            Dry, very dense, no odor.            Primarily coarse to medium sand with ~30% gravel to ~20 mm and ~30% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.</p> <p><b>SANDY LEAN CLAY</b> (114-116.25 feet)            Dry, very hard, no odor.            Primarily silt and clay with trace amounts of coarse sand to ~5 mm, and ~35% medium to fine sand. The sand subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and have a strong reaction to HCl.</p>					
	4360	SM						
		SC	<p><b>SILTY SAND with GRAVEL</b> (112.5-114 feet)            Dry, very dense, no odor.            Primarily coarse to medium sand with ~15% gravel to ~20 mm and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.</p> <p><b>CLAYEY SAND</b> (118.25-121 feet)            Dry, very dense, no odor.            Primarily medium to fine sand with ~5% gravel to ~15 mm and ~40% silt and clay. The sand subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.</p>					
120		CL	<p><b>SANDY LEAN CLAY</b> (121-122.75 feet)            Dry, very hard, no odor.            Primarily silt and clay with ~35% medium to fine sand to ~1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a strong reaction to HCl.</p>					
	4355	CL	<p><b>SANDY LEAN CLAY</b> (122.75-124.5 feet)            Dry, very hard, no odor.            Primarily silt and clay with trace amounts of gravel to 7mm, ~45% medium to fine sand, and ~5% coarse sand. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are olive brown (2.5Y 4/3), and have a very strong reaction to HCl.</p>					
		SC	<p><b>CLAYEY SAND</b> (124.5-126 feet)            Dry, very dense, no odor.            Primarily medium to fine sand with ~5% gravel to ~20 mm and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.</p>					
125		SM	<p><b>SILTY SAND</b> (126-129 feet)            Dry, very dense, no odor.            Primarily coarse to medium sand with ~5% gravel to ~15 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a weak reaction to HCl.</p>					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-7Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 11 of 18

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4350								
130		CL	<b>SANDY LEAN CLAY</b> (129-131 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are olive brown (2.5Y 4/3), and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (131-131.75 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace amounts of gravel to ~10 mm, ~15% coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (131.75-133.5 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, reddish brown, and have a strong reaction to HCl.					
4345		CL	<b>SANDY LEAN CLAY</b> (133.5-134.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and have a strong reaction to HCl.					
135		CL	<b>SANDY LEAN CLAY</b> (134.5-137 feet) Dry, very hard, no odor. Primarily silt and clay with ~5% gravel to ~15 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (137-138 feet) Dry, hard, no odor. Primarily silt and clay with ~30% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (138-139.5 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
4340								
140		SC	<b>CLAYEY SAND with GRAVEL</b> (139.5-142.5 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 18mm and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		ML	<u>SANDY SILT</u> (142.5-143 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~5% gravel to ~10 mm, and ~35% medium to fine sand. The sand and gravel is angular to subangular. The fines have low plasticity and low toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
	4335	CL	<u>SANDY LEAN CLAY</u> (143-144.75 feet) Dry, hard, no odor. Primarily silt and clay with ~35% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and have a strong reaction to HCl.					
145		SM	<u>SILTY SAND</u> (144.75-146.75 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		CL	<u>SANDY LEAN CLAY</u> (146.75-148 feet) Dry, very hard, no odor. Primarily silt and clay with trace amounts of gravel to ~15 mm, ~45% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
	4330	CL	<u>SANDY LEAN CLAY</u> (148-149.5 feet) Dry, hard, no odor. Primarily silt and clay with ~35% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and have a strong reaction to HCl.					
		SM	<u>SILTY SAND</u> (149.5-150 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
150		SC	<u>CLAYEY SAND with GRAVEL</u> (150-152 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to ~15 mm and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		CL	<u>SANDY LEAN CLAY</u> (152-155 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~5% gravel to ~15 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
	4325							

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155		SC	<b>CLAYEY SAND</b> (155-161.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~25 mm, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4320							
160		SM	<b>SILTY SAND</b> (161.5-163 feet) Moist, very dense, no odor. Primarily medium to fine sand with trace amounts of gravel to ~12 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (163-163.5 feet) Moist, very hard, no odor.					
	4315	SM	Primarily silt and clay with ~5% gravel to ~20 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and have a strong reaction to HCl. <b>SILTY SAND with GRAVEL</b> (163.5-166.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~15 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
165		SM	<b>SILTY SAND with GRAVEL</b> (166.5-167 feet) Dry to moist, very dense, no odor.					



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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4310	SC	Primarily coarse to medium sand with ~20% gravel to ~20 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl. <b>CLAYEY SAND</b> (167-169 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm and ~20% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
170		SC	<b>CLAYEY SAND</b> (169-175 feet) Dry to moist from 169-174 feet, moist from 174-175 feet, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4305							
175		SM	<b>SILTY SAND with GRAVEL</b> (175-175.25 feet) Dry to moist, dense, no odor.					
		SM	Primarily coarse to medium sand with ~15% gravel to ~30 mm and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
			<b>SILTY SAND with GRAVEL</b> (175.25-176.5 feet) Dry to moist, dense, no odor.					
		CL	Primarily medium to fine sand with ~20% gravel to ~20 mm and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>SANDY LEAN CLAY</b> (176.5-177 feet) Dry to moist, very hard, no odor. Primarily silt and clay with trace amounts of gravel to ~15 mm, ~50% medium to fine sand, and trace amounts of coarse sand. The sand is subangular to sub rounded and gravel is subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.					
	4300		<b>SILTY SAND</b> (177-179 feet) Dry to moist, very dense, no odor.					
		SM	Primarily medium to fine sand with trace amounts of gravel to ~10 mm, and ~40% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a weak reaction to HCl.					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
185	4295	SM	<b>SILTY SAND with GRAVEL</b> (179-180 feet) Moist, dense, no odor. Primarily medium to fine sand with ~30% gravel to ~30 mm, ~20% coarse sand, and ~25% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		ML	<b>SILTY SAND</b> (180-180.25 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~20% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
			<b>SANDY SILT</b> (180.25-184.5 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~10% gravel to ~20 mm, ~25% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have low plasticity and low toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (184.5-185 feet) Moist, very hard, no odor. Primarily silt and clay with trace amounts of gravel to ~10 mm, ~35% medium to fine sand, and ~15% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
190	4290	SM	<b>SILTY SAND with GRAVEL</b> (191-192 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~20% gravel to ~25 mm and ~35% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (191-192 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~20% gravel to ~25 mm and ~35% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND with GRAVEL</b> (192-195 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~20% gravel to ~25 mm and ~30% silt and clay. The sand is subangular to					

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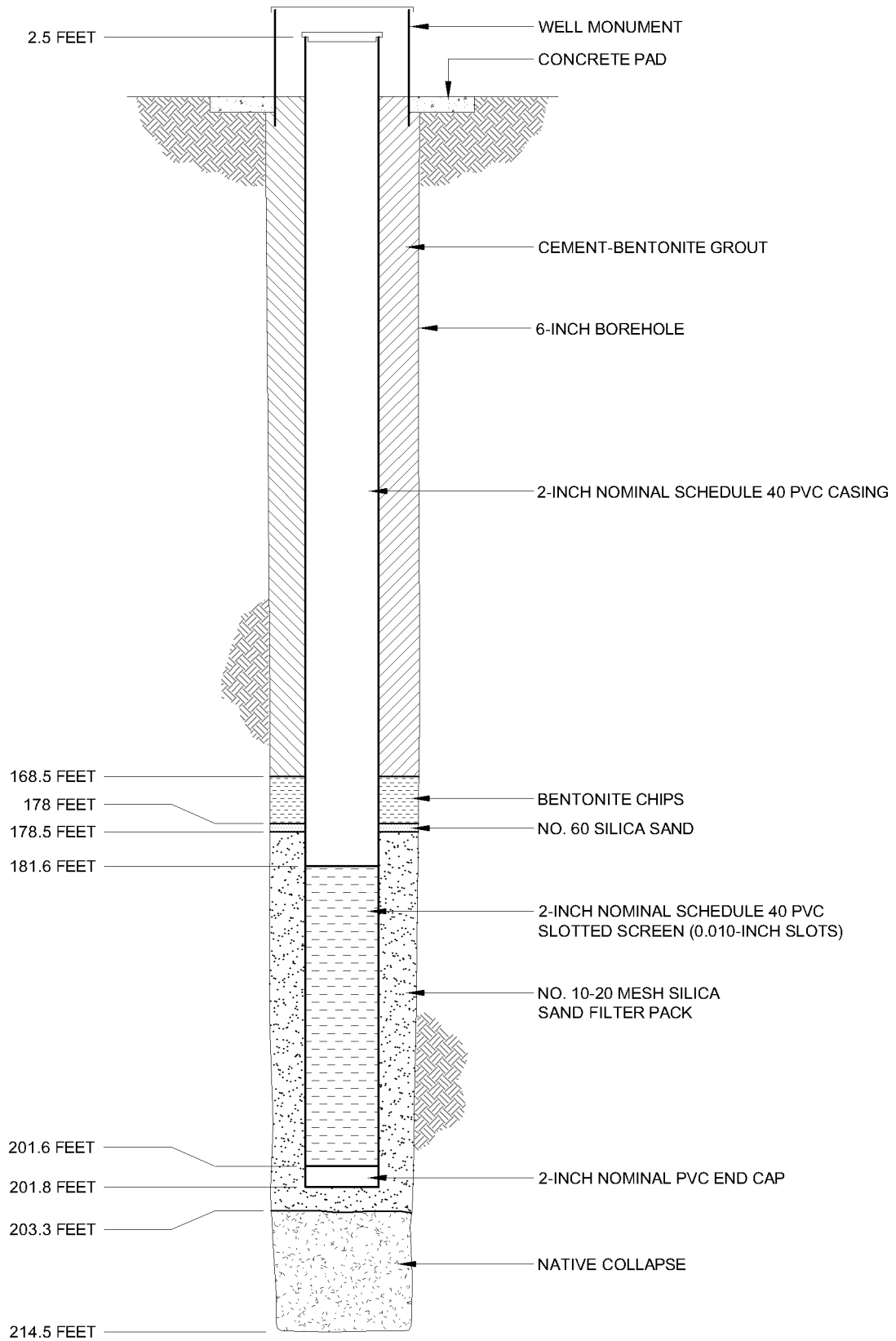
Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4285			subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are light brown, and have a strong reaction to HCl.					
195		CL	<b>SANDY LEAN CLAY</b> (195-195.5 feet) Dry to moist, very hard, no odor.					
		SC	Primarily silt and clay with ~10% gravel to ~15 mm, ~15% medium to fine sand, and ~15% coarse sand. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			<b>CLAYEY SAND with GRAVEL</b> (195.5-204 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~20% gravel to ~60 mm, and ~40% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
4280								
200								
4275								
		SC	<b>CLAYEY SAND</b> (204-205feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace amounts of coarse sand to ~4 mm, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
205		ML	<b>SANDY SILT</b> (205-206.75 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~5% gravel to ~6 mm, ~25% medium to fine sand, and ~10% coarse sand. The sand is					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		CL	<u>SANDY LEAN CLAY</u> (206.75-207.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~50% medium to fine sand to ~2 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are brown (7.5YR 4/3), and have a strong reaction to HCl.					
		SC	<u>CLAYEY SAND with GRAVEL</u> (207.5-208.5 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to ~40 mm, ~20% coarse sand, and ~40% silt and clay. The sand and gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
4270		CL	<u>SANDY LEAN CLAY</u> (208.5-208.75 feet) Dry, very hard, no odor. Primarily silt and clay with ~50% medium to fine sand to ~2 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are brown (7.5YR 4/3), and have a strong reaction to HCl.					
210		CL	<u>SANDY LEAN CLAY</u> (208.75-211 feet) Dry-moist, very hard, no odor. Primarily silt and clay with ~5% gravel to ~20 mm, ~35% medium to fine sand, and ~10% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<u>CLAYEY SAND with GRAVEL</u> (211-214.5 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~50 mm and ~20% silt and clay. The sand is subrounded and the gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
4265								
		CL	<u>SANDY LEAN CLAY</u> (214.5-217.25 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~5% gravel to ~10 mm, ~30% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a very strong reaction to HCl.					
215								
		SC	<u>CLAYEY SAND</u> (217.5-218.75 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~20 mm and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no to a weak reaction to HCl.					
4260								
			<u>DECOMPOSED GRANITE</u> (218.75-220.75 feet) Dry, very hard, no odor.					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
220			Primarily silt and clay with ~50% crystalline quartz. The fines have medium plasticity and toughness, are light gray (10YR 7/2), and have no reaction to HCl.					
			<b>DECOMPOSED GRANITE</b> (220.75-225.5 feet) Dry, very dense, no odor. Primarily crystalline quartz with ~45% silt and clay. The fines have medium plasticity and toughness, are light gray (10YR 7/2) with some reddish brown (2.5YR 4/4) seams, and have no reaction to HCl.					
	4255							
225			<b>DECOMPOSED GRANITE and TUFF</b> (225.5-227.25 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% decomposed bedrock with ~25% weathered granite material and ~75% weathered tuff material. The fines have medium plasticity and toughness, are mottled [black (5Y 2.5/1), greenish gray (GLE Y1 5/1), and red (10R 5/6)], and have no reaction to HCl.					
			<b>DECOMPOSED TUFF</b> (227.25-230 feet) Dry, very hard, no odor. Primarily silt and clay with ~30% decomposed tuff, trace secondary quartz. The fines have medium plasticity and toughness, are greenish gray (GLE Y1 5/1), and have no reaction to HCl.					
	4250							
230								



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: April 2006

Atlantic Richfield  
Company

Project: 129684

**Well B/W-8D  
Construction Details**

Project Name: Yerington Groundwater InvestigationWell Number: B/W-8Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 17

Boring Location: <b>North of mine tailings, west of residential area</b>	Elevation: <b>4465.8 feet amsl</b>	East: <b>320292</b> North: <b>1565005.7</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>D. Tonnancour</b>	Date Started: <b>8/15/05</b> Date Finished: <b>8/21/05</b>
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>	Total Depth: (feet) <b>214.5</b>	Water Depth: (feet) <b>146.5' / 139.27'</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch PVC</b>
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>	Screened Interval and Well Depth: <b>181.6-201.6 ft., bottom at 201.8 ft.</b>	
Well Seal: <b>Bentontite and Cement</b>	Slot Size: <b>0.020"</b>	Filter Material: <b>#10-20 Silica Sand</b>
Logged By: <b>C. Gardner</b>	Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4465		SM	<b>SILTY SAND with GRAVEL</b> (0-1 feet) Dry, loose, no odor. Primarily medium to fine sand with ~20% gravel to 50 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong to no reaction to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (1-5.5 feet) Dry, loose, no odor. Primarily coarse to medium sand with ~30% gravel to 35 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
5								Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		SM	<b>SILTY SAND</b> (5.5-6.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					All depths are below land surface unless stated otherwise.
4460		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (6.5-8 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					WELL DESIGN for B/W-8D: Screened Interval: 181.6-201.6 feet. Bottom of sump: 201.8 feet.
		SM	<b>SILTY SAND with GRAVEL</b> (8-11 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					Cement Grout: 0-168.5 feet. Bentonite Chips: 168.5-178 feet. Filter Pack: #60 Sand 178-178.5 feet, #10-20 Sand 178.5-203.3 feet. Bentonite Chips: 203.3-214.5 feet
								Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,468.33 feet amsl. PVC Stick-up: 2.5 feet above land surface.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4455								
		SM	<b>SILTY SAND with GRAVEL</b> (11-12.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to 30 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (12.5-14.75 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~15% gravel to 20 mm, and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
15		SM	<b>SILTY SAND with GRAVEL</b> (14.75-15.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic and are dark gray.					
4450		SW-SM	<b>WELL-GRADED SAND with SILT</b> (15.5-16.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (16.75-18 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 45 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (18-20 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a weak to no reaction to HCl.					
20		CL	<b>SANDY LEAN CLAY</b> (20-20.5 feet) Dry, very very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 8 mm. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are very dark grayish brown (10YR 3/2), and do not react to HCl.					
4445		GW-GM	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (20.5-22.25 feet) Dry, very dense, no odor. Primarily gravel to 30 mm with ~35% coarse to medium sand and ~10% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		GM	<b>SILTY GRAVEL with SAND</b> (22.25-24.5 feet) Dry, medium dense, no odor.					



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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			Primarily gravel to 40 mm with ~35% coarse to medium sand and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
25	4440	SP	<b>POORLY GRADED SAND</b> (24.5-26 feet) Dry, medium dense, no odor. Primarily medium to fine sand to 2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (26-27.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
30		SC	<b>CLAYEY SAND</b> (27.75-30.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown, and have a strong reaction to HCl.					
	4435	SM	<b>SILTY SAND with GRAVEL</b> (30.5-33 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (33-35 feet) Dry, dense, no odor. Primarily sand with ~20% gravel to 20 mm and ~25% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
35	4430	SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (35-36.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~15% gravel to 20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (36.5-42.25 feet) Dry, dense, no odor. Primarily sand with ~20% gravel to 40 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
40								
	4425							
		SM	<b>SILTY SAND</b> (42.25-44 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (44-45 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
45		SM	<b>SILTY SAND with GRAVEL</b> (45-47 feet) Dry, dense, no odor. Primarily medium to fine sand with ~20% gravel to 30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4420							
		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (47-48 feet) Dry, dense, no odor. Primarily medium to coarse sand with ~15% fine gravel to 15 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (48-52 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~10% fine gravel to 20 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic,					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50	4415		are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND with GRAVEL</b> (52-54.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% fine gravel to 15 mm and ~30% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and low toughness, are brown, and have a strong reaction to HCl.					
55		SM	<b>SILTY SAND with GRAVEL</b> (54.5-55 feet) Dry, very dense, no odor.					
		SC	Primarily coarse to medium sand with ~20% gravel to 25 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM						
	4410	SW	<b>CLAYEY SAND with GRAVEL</b> (55-55.25 feet) Dry, dense, no odor.					
			Primarily coarse to fine sand with ~15% gravel to 20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are dark gray, and have a strong reaction to HCl.					
			<b>SILTY SAND with GRAVEL</b> (55.25-55.5 feet) Dry, dense, no odor.					
		SW-SM	Primarily coarse to medium sand with ~20% gravel to 30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>WELL-GRADED SAND with GRAVEL</b> (55.5-57 feet) Dry, dense, no odor.					
		SW-SM	Primarily coarse to medium sand with ~20% gravel to 50 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (57-58 feet) Dry, dense, no odor.					
			Primarily medium to fine sand with ~5% gravel to 30 mm and ~10% silt and clay. The sand is angular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak to strong reaction to HCl.					
60			<b>WELL-GRADED SAND with SILT</b> (58-60.5 feet) Dry, dense, no odor.					
	4405	SW-SM	Primarily medium sand with ~10% gravel to 35 mm and ~10% silt and clay. The sand is angular to subrounded, the gravel is angular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (60.5-61.5 feet) Dry, dense, no odor.					
		SC	Primarily medium sand with ~10% gravel to 20 mm and ~10% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM						

# BORING LOG

Well Number: **B/W-8**

**121243.021**

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
65	4400	SM	<b>CLAYEY SAND</b> (61.5-62 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			<b>SILTY SAND</b> (62-62.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		CL	<b>SILTY SAND</b> (62.5-64.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
			<b>SANDY LEAN CLAY</b> (64.5-66 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and low toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
		SC	<b>SANDY LEAN CLAY</b> (66-66.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~30% sand and ~20% gravel to 60 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/3), and have a strong reaction to HCl.					
			<b>CLAYEY SAND with GRAVEL</b> (66.5-67.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 30 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>SANDY LEAN CLAY</b> (67.5-69 feet) Dry, very hard, no odor. Primarily silt and clay with ~30% medium to fine sand and ~10% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/4), and have a strong reaction to HCl.					
			<b>SILTY SAND</b> (69-70 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are dark gray, and have a strong reaction to HCl.					
		SC	<b>SILTY SAND with GRAVEL</b> (70-71.5 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 30 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>CLAYEY SAND with GRAVEL</b> (71.5-73 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
70	4395	SM	<b>SILTY SAND with GRAVEL</b> (73-73.5 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~40% gravel to 20 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			<b>CLAYEY SAND</b> (73.5-74 feet)					
		SW-SM						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4390		Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. <b>SILTY SAND with GRAVEL</b> (74-75 feet)					
		SM	Dry, very dense, no odor. Primarily sand with ~20% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl. <b>WELL-GRADED SAND with SILT and GRAVEL</b> (75-76.5 feet)					
			Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		CL	<b>SILTY SAND</b> (76.5-78.5 feet)					
		CL	Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
80			<b>SANDY LEAN CLAY</b> (78.5-79 feet)					
	4385		Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (79-81.5 feet)					
		CL	Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~10% gravel to 30 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SM	<b>SANDY LEAN CLAY</b> (81.5-82 feet)					
			Dry, very hard, no odor. Primarily silt and clay with ~30% medium to fine sand and ~10% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are pale brown (10YR 6/3), and do not react to HCl.					
			<b>SILTY SAND with GRAVEL</b> (82-85.5 feet)					
			Dry, very dense, no odor. Primarily sand with ~20% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
85								
	4380	CL	<b>SANDY LEAN CLAY</b> (85.5-88.5 feet)					
			Dry, very hard, no odor. Primarily silt and clay with ~30% medium to fine sand and ~5% fine gravel to 15 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
90	4375	CL	<b>SANDY LEAN CLAY</b> (88.5-89 feet) Dry, very hard, no odor.					
		SM	Primarily silt and clay with ~35% coarse to medium sand and ~5% gravel to 20 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak to no reaction to HCl.					
		SM	<b>SILTY SAND</b> (89-90.25 feet) Dry, very dense, no odor.					
			Primarily coarse to medium sand with ~10% gravel to 25 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SILTY SAND</b> (90.25-92.25 feet) Dry, very dense, no odor.					
			Primarily coarse to medium sand with ~20% fine sand, ~10% gravel to 20 mm and ~20% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are yellowish brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (92.25-94.5 feet) Dry, very dense, no odor.					
95	4370	CL	<b>SANDY LEAN CLAY</b> (94.5-96.75 feet) Dry, very hard, no odor.					
			Primarily silt and clay with ~35% coarse to medium sand and ~5% fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
		SM	<b>SILTY SAND</b> (96.75-98.5 feet) Dry, very dense, no odor.					
			Primarily coarse to medium sand with ~20% fine sand, ~10% gravel to 50 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are reddish brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (98.5-99.5 feet) Dry, very dense, no odor.					
			Primarily coarse to medium sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are yellowish brown, and do not react to HCl.					
100	4365	CL	<b>SANDY LEAN CLAY</b> (99.5-101.5 feet) Dry, very dense, no odor.					
			Primarily silt and clay with ~50% medium to fine sand with trace fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are light brown, and do not react to HCl.					

# BORING LOG

Well Number: **B/W-8**

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
105  <								

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115	4350	SM	Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 45 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<u>SILTY SAND with GRAVEL</u> (115-115.75 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 45 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are reddish brown, and do not react to HCl.					
		CL	<u>SILTY SAND with GRAVEL</u> (155.75-116.5 feet) Dry, very dense, no odor.					
		SC	Primarily coarse to medium sand with ~15% fine sand, ~35% gravel to 60 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			<u>SANDY LEAN CLAY with GRAVEL</u> (116.5-117 feet) Dry, very hard, no odor.					
			Primarily silt and clay with ~25% coarse to medium sand and ~15% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		CL	<u>CLAYEY SAND with GRAVEL</u> (117-119 feet) Dry, very dense, no odor.					
			Primarily coarse to fine sand with ~20% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
120		SC	<u>SANDY LEAN CLAY</u> (119-119.75 feet) Dry, very hard, no odor.					
	4345	SM	Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
			<u>CLAYEY SAND with GRAVEL</u> (119.75-120.5 feet) Dry, very dense, no odor.					
			Primarily coarse to medium sand with ~15% fine sand, ~25% gravel to 40 mm, and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SM	<u>SILTY SAND with GRAVEL</u> (120.5-122 feet) Dry, very dense, no odor.					
		SM	Primarily coarse to medium sand with ~25% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			<u>SILTY SAND with GRAVEL</u> (122-122.5 feet) Dry, very dense, no odor.					
			Primarily coarse to medium sand with ~20% gravel to 45 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<u>SILTY SAND with GRAVEL</u> (122.5-123.5 feet) Dry, very dense, no odor.					
			Primarily coarse to medium sand with ~25% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
125	4340		<u>SANDY LEAN CLAY</u> (123.5-126.5 feet) Dry, very hard, no odor.					
			Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SW-SM	<u>WELL-GRADED SAND with SILT and GRAVEL</u> (126.5-127.75 feet) Dry to moist, very dense, no odor.					
			Primarily medium to fine sand with ~15% fine sand, ~30% gravel to 40 mm, and ~10% silt and clay. The sand and					



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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
130	4335	CL	gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl. <b>SANDY LEAN CLAY</b> (127.75-129.75 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 7 mm. The sand and gravel are subangular. The fines have medium plasticity and toughness, are strong brown (7.5YR 5/6), and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (129.75-132.5 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~15% gravel to 30 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (132.5-134 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to 30 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
135	4330	SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (134-134.75 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~25% fine gravel to 17 mm, and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW						
		SM	<b>WELL-GRADED SAND with GRAVEL</b> (134.75-135.25 feet) Dry, very dense, no odor.					
		SM						
		SW-SM	Primarily medium to fine sand with ~25% gravel to 28 mm and ~5% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
140			<b>SILTY SAND with GRAVEL</b> (135.25-135.5 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 50 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SILTY SAND with GRAVEL</b> (135.5-136 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 40 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT and GRAVEL</b> (136-146.5 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~40% gravel to 55 mm and ~10% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-8Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 12 of 17

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
145	4320							
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (146.5-150 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to 40 mm and ~5% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
150	4315	SC	<b>CLAYEY SAND with GRAVEL</b> (150-154.5 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~15% gravel to 40 mm, and ~25% silt and clay. The sand and gravel are angular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-8Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 13 of 17

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155	4310	GW-GM	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (154.5-156 feet) Moist to saturated, very dense, no odor. Primarily gravel to 60 mm with ~30% coarse to medium sand and ~10% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (156-157.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (157.5-159 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to 45 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
160	4305	CL	<b>SANDY LEAN CLAY with GRAVEL</b> (159-162.25 feet) Moist, very hard, no odor. Primarily silt and clay with ~30% coarse to fine sand and ~20% gravel to 40 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		ML	<b>SANDY SILT</b> (162.25-164 feet) Moist, very hard, no odor. Primarily silt and clay with ~40% sand and ~10% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown (10YR 5/3), and do not react to HCl.					
165	4300	SC	<b>CLAYEY SAND with GRAVEL</b> (164-166 feet) Moist, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~20% gravel to 30 mm, and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (166-168 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to 10 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are					

# BORING LOG

Well Number: **B/W-8**

Monitoring Well

Project Number:

**121243.021**

Sheet **14** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY with GRAVEL</b> (168-169 feet) Moist, hard, no odor. Primarily silt and clay with ~25% sand and ~25% gravel to 30 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
170	4295	SC	<b>CLAYEY SAND with GRAVEL</b> (169-176 feet) Moist, dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~15% gravel to 50 mm, and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.	B/W - 8 @ 165 - 170 Ft.				
175	4290	SM	<b>SILTY SAND with GRAVEL</b> (176-179 feet) Moist to saturated, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~35% gravel to 60 mm, and ~15% silt and clay. The sand is and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (179-184 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~25% fine sand, trace fine gravel to 15 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic,					

SONIC METHOD LOG YERINGTON.GPJ BRN&amp;CALD.GDT 1/31/06

Project Name: Yerington Groundwater InvestigationWell Number: B/W-8Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 15 of 17

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4285		are brown, and do not react to HCl.					
185		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (184-185.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~35% gravel to 42 mm, and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4280	SC	<b>CLAYEY SAND</b> (185.5-187.25 feet) Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 12 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (187.25-188 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (176-179 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~35% gravel to 60 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
190		SW	<b>WELL-GRADED SAND</b> (189.5-190.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 8 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4275	SM	<b>SILTY SAND with GRAVEL</b> (190.5-194.25 feet) Saturated, dense, no odor. Primarily sand with ~20% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					

B/W-8 @ 181 - 186 Ft.

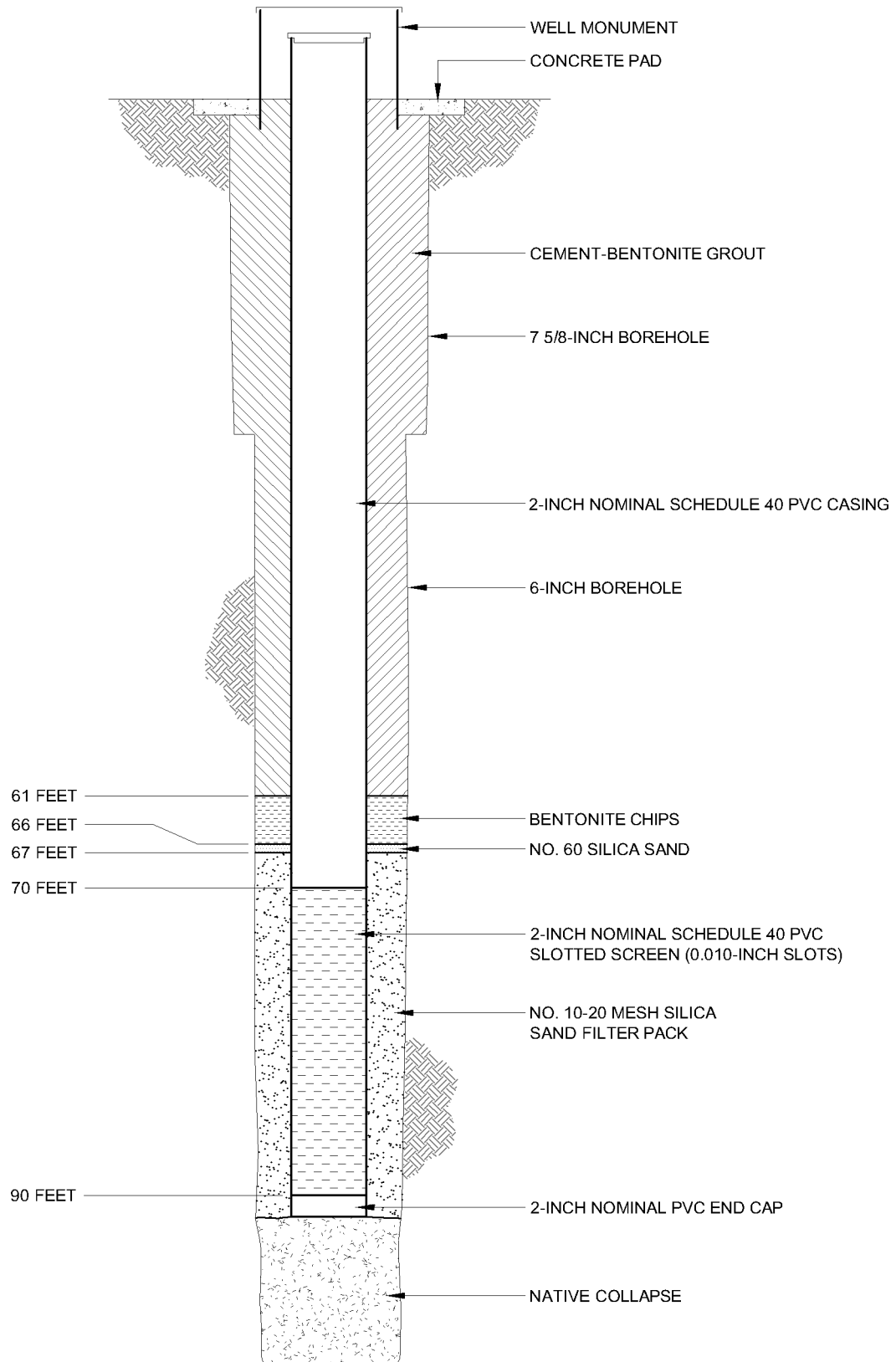
Project Name: Yerington Groundwater InvestigationWell Number: B/W-8Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 16 of 17

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
195	4270	SM	<b>SILTY SAND with GRAVEL</b> (190.5-194.25 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 25 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with SILT</b> (197-197.5 feet) Dry to moist, very dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~5% gravel to 35 mm, and ~10% silt and clay. The sand and gravel are subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL						
		SM	<b>SANDY LEAN CLAY</b> (197.5-198 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~30% coarse to medium sand, ~15% fine sand, and ~5% fine gravel to 15 mm. The sand and gravel are subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
200	4265	SM	<b>SILTY SAND</b> (198-199.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		CL	<b>SILTY SAND</b> (199.5-201 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% fine gravel to 10 mm, and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY with GRAVEL</b> (201-204 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~30% sand and ~20% gravel to 50 mm. The sand and gravel are angular. The fines have medium plasticity and toughness and the upper 0.5 feet have a weak reaction to HCl, the lower 2.5 feet have a strong reaction to HCl.					
205	4260	GW-GM	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (204-206.5 feet) Dry, very dense, no odor. Primarily gravel to 25 mm with ~30% coarse to medium sand and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic and have a strong reaction to HCl. The upper 1.25 feet are pinkish white (5YR 8/2), the lower 1.25 feet are pale red (10R 6/4).					

B/W-8 @ 196 - 201 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-8Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 17 of 17

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
210	4255		<b>DECOMPOSED GRANITE</b> (206.5-213.5 feet) Dry, very dense, no odor. Fractured decomposed granite with ~15 to 25% secondary silt and clay. The fines have medium plasticity and toughness, have a strong reaction to HCl, and are light reddish brown (2.5YR 6/4) to reddish yellow (5YR 6/6) to pink (5YR 8/3).					
			<b>DECOMPOSED GRANITE</b> (213.75-214.5 feet) Dry, very dense, no odor. Fractured decomposed granite with ~10% secondary silt and clay. The fines are nonplastic, have a strong reaction to HCl, and are pinkish white (7.5YR 8/2).					



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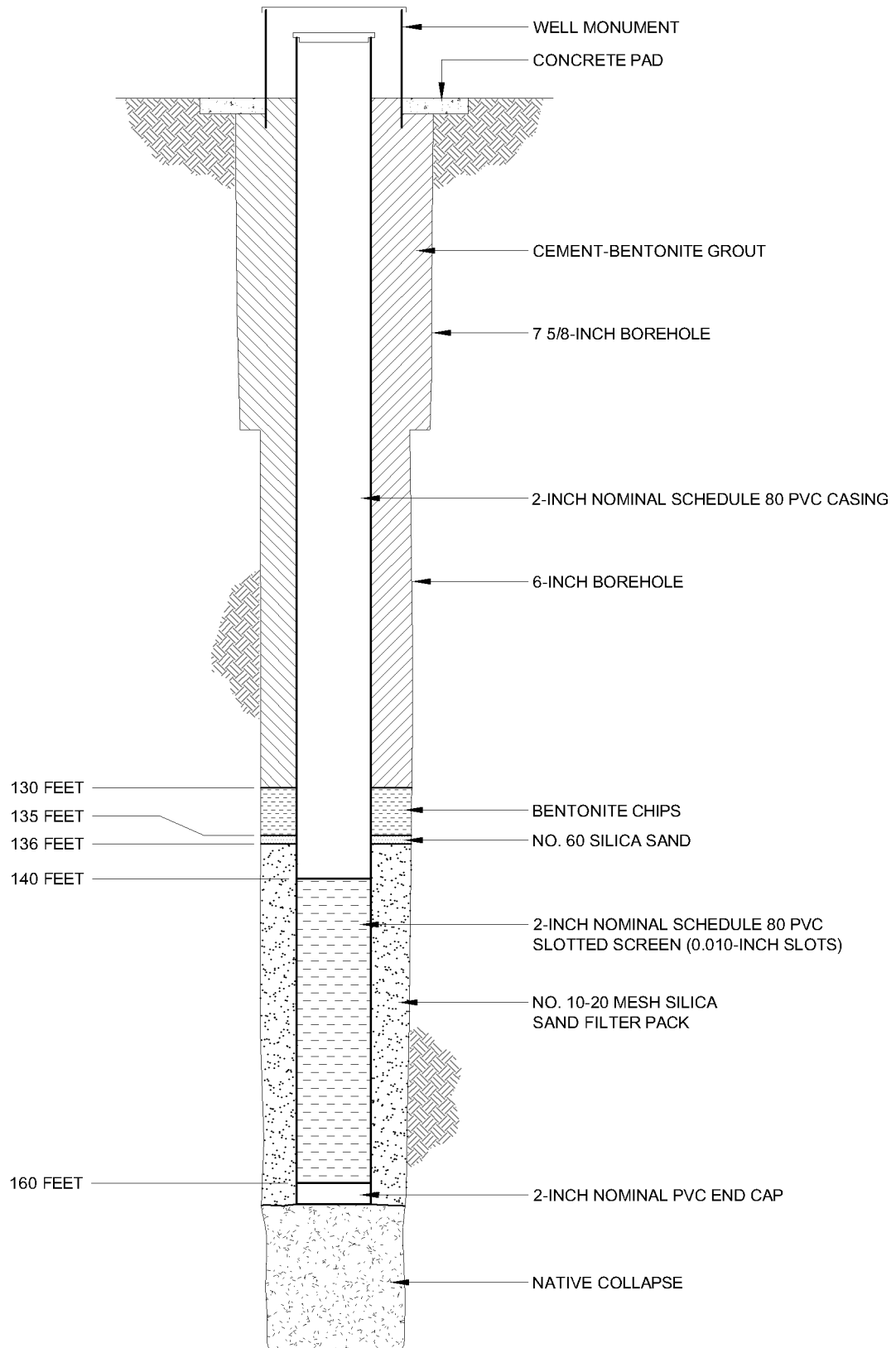
Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-91  
Construction Details**





NOT TO SCALE

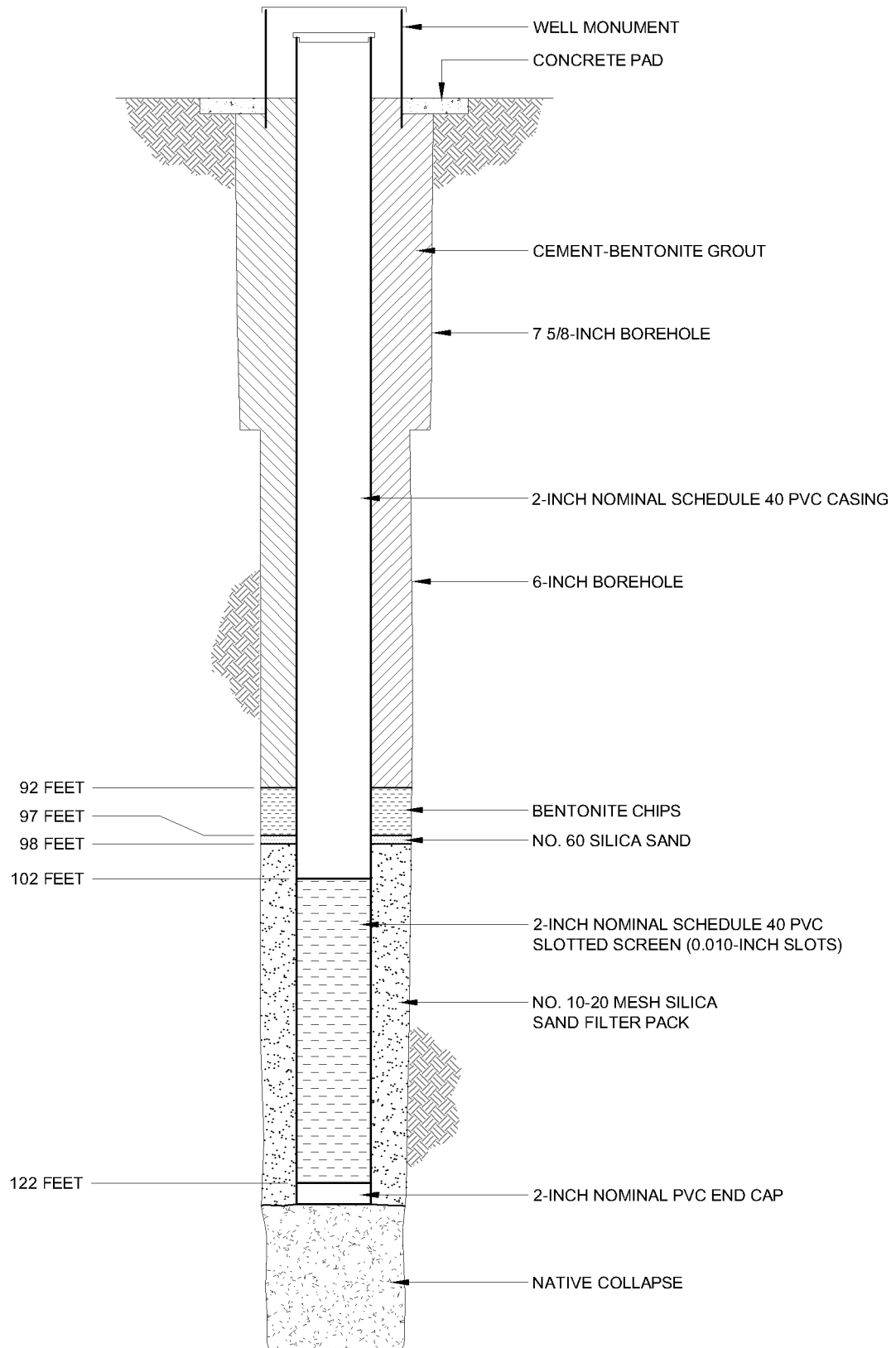
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-19I  
Construction Details**



NOT TO SCALE

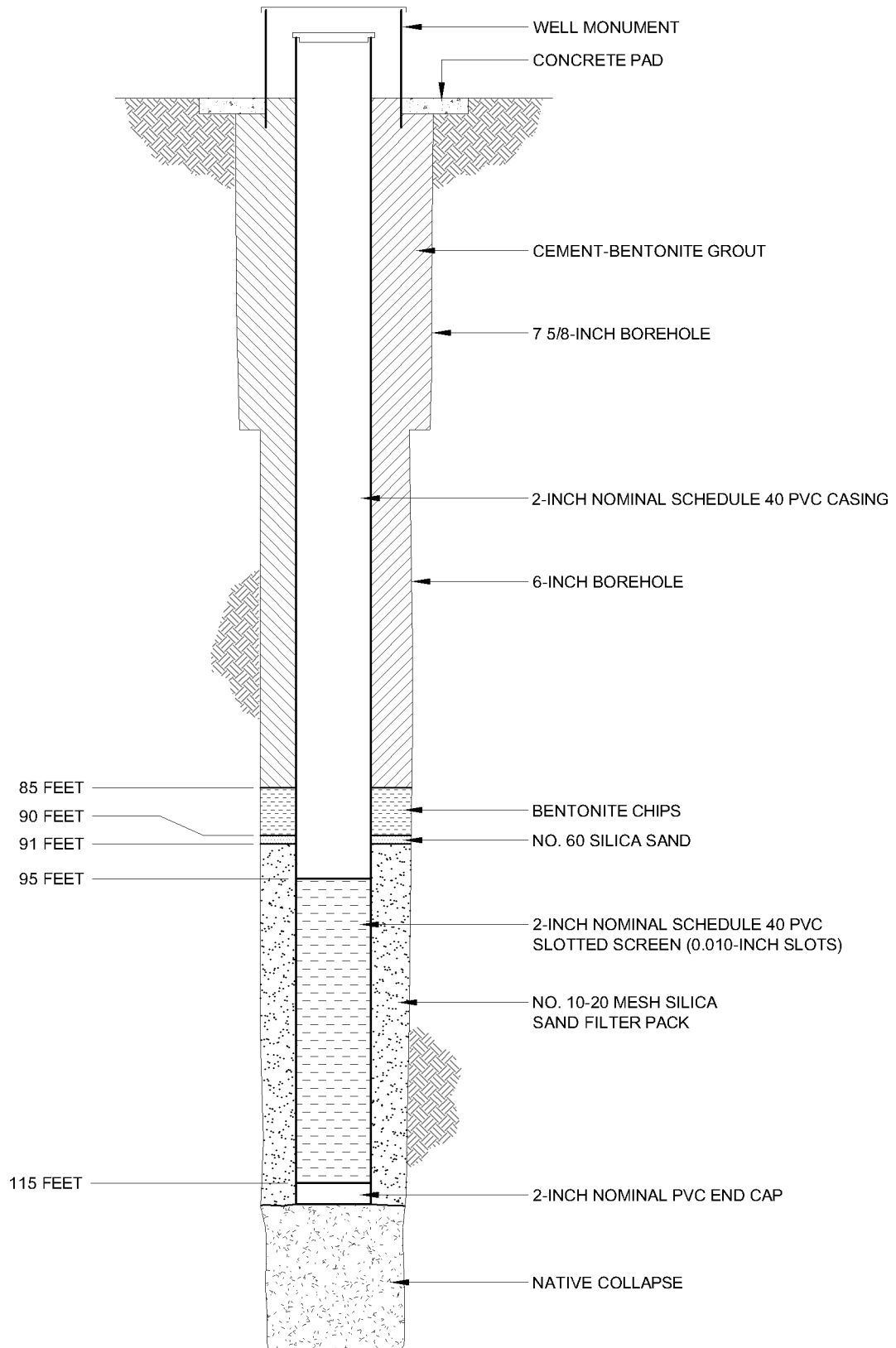
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-25I  
Construction Details**



NOT TO SCALE

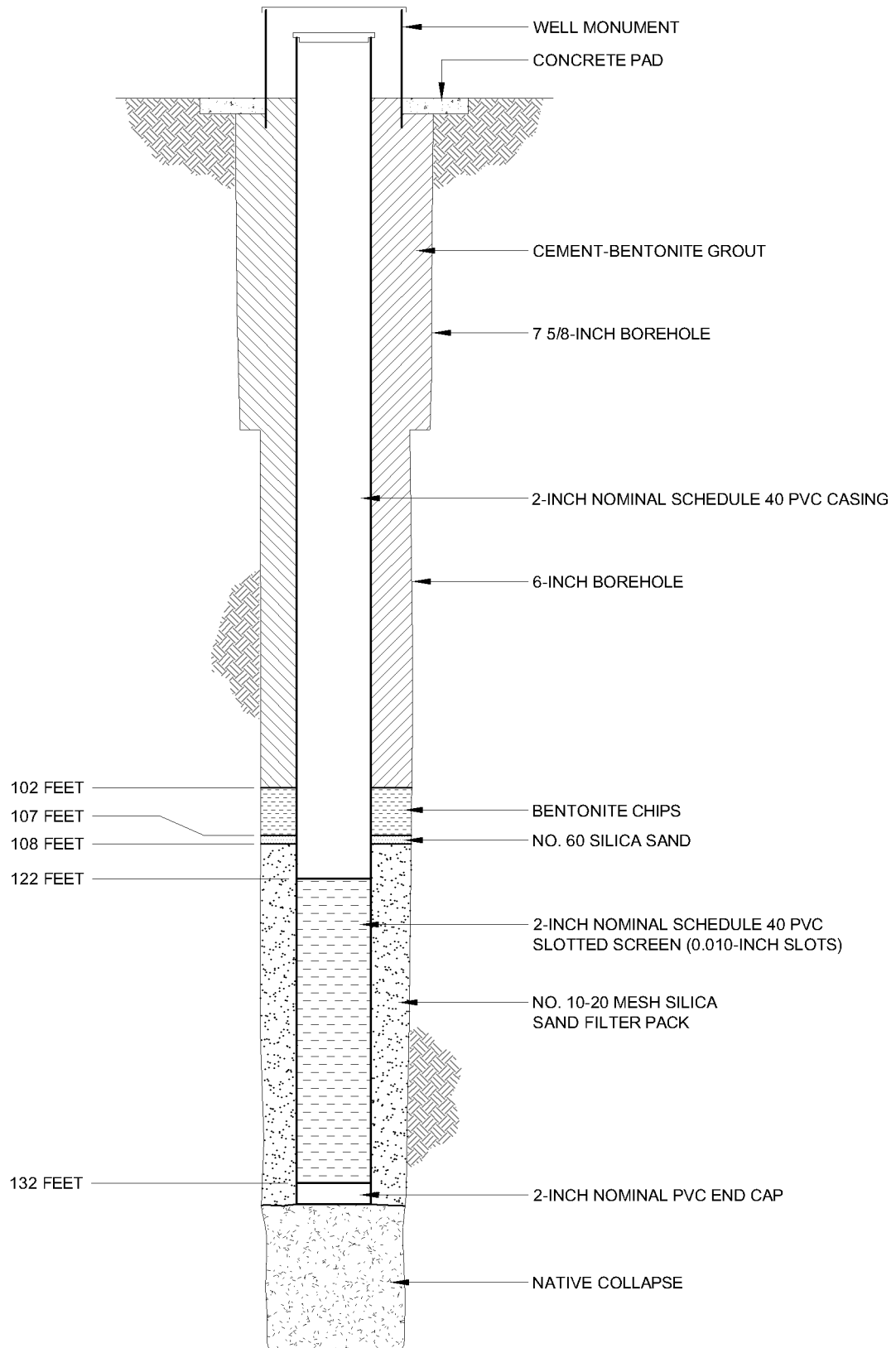
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-28I  
Construction Details**



**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-2911  
Construction Details**

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-41

Sheet 1 of 5

<b>Boring Location:</b> On Site, north of Pumpback Well System	<b>Northing:</b> 1557202	<b>Easting:</b> 321659.7
<b>Drilling Contractor:</b> Cascade Drilling Inc.	<b>Top of PVC Elevation:</b> 4355.1 feet amsl	<b>Ground Surface Elevation:</b> 4353 feet amsl
<b>Drilling Equipment:</b> CS 500 Sonic Drill Rig	<b>Date Started:</b> 2/28/09	<b>Date Finished:</b> 3/1/09
<b>Drilling Method:</b> Sonic, utilized 4" core barrel	<b>Completed Depth:</b> 106 fbg	<b>Water Depth:</b> 25.66 fbmp
<b>Sampling Method:</b> NA	<b>Driller:</b> R. LaBrosse Sr.	<b>WELL CONSTRUCTION</b>
<b>Well Seal:</b> NA	<b>Borehole Diameter:</b> 6	<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC
<b>Logged By:</b> C. Strauss	<b>Drilling Fluid:</b> NA	<b>Slot Size:</b> 0.020 <b>Filter Material:</b> #3 Silica Sand

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4350			<b>No Recovery (0 - 6)</b> No recovery due to vacuum truck removal.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5		SP	<b>Poorly Graded Sand (6 - 9.5)</b> Dry, loose to dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Clayey layer present from 7 - 7 foot 3 inches bgs.					Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.
10		SC SW	<b>Clayey Sand (9.5 - 10)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 4/4 coloring, and do not react to HCl.  <b>Well Graded Sand (10 - 14)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Iron staining bands found in sample.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.
15		SC	<b>Clayey Sand (14 - 18)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 2.5YR 4/6 coloring, and do not react to HCl. Very hard, has a lot of clay as well as silt.					WELL DESIGN for LEP-MW-41: PVC Stickup: 2.10 feet Cement - Bentonite Grout: 0 - 81 feet Bentonite Chips: 81 - 84 feet #3 Silica Sand Filter Pack: 84 - 106 feet 2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 86 - 96 feet Additional Bentonite Fill: NA feet
4335		SP	<b>Poorly Graded Sand (18 - 21)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-4I

Sheet 2 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
25	4330	SC	<b>Clayey Sand (21 - 26)</b> Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 4/3 coloring, and do not react to HCl.					
30	4325	CL	<b>Lean Clay with Sand (26 - 28)</b> Moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~45% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity, have the 5YR 5/2 coloring, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (28 - 31)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10-15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
35	4320	SC	<b>Clayey Sand (31 - 32)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.					
		SW	<b>Well Graded Sand (32 - 40)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
40	4315							
45	4310	SM	<b>Silty Sand (40 - 45.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Name: LEP-MW-41

Sheet 3 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SC	<b>Clayey Sand (45.5 - 46)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, have the 5YR 4/4 coloring, and do not react to HCl.					
		SW	<b>Well Graded Sand (46 - 49)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4305								
		SC	<b>Clayey Sand (49 - 53)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.					
50								
		CL	<b>Sandy Lean Clay (53 - 55.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity and toughness, have the 5YR 4/3 coloring, and have no reaction to strong reaction to HCl. Gray clay nodules are inter-mixed in clay. Nodules have a very strong reaction to HCl.					
4300								
		SC	<b>Clayey Sand (55.5 - 62)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
55								
		SW	<b>Well Graded Sand (62 - 65)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
60								
		SC	<b>Clayey Sand (65 - 66)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl. Gray clasts with same characteristics as found in 53 - 55.5 ft bgs section.					
65								
		SC	<b>Clayey Sand (66 - 68)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.					
70								
		SW	<b>Clayey Sand (68 - 69.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and ~25% silt and clay.					



# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-4I

Sheet 4 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75	4280	CL	<p>The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have the 5YR 4/4 coloring.</p> <p><b>Well Graded Sand (69.5 - 73.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p> <p><b>Lean Clay (73.5 - 82)</b> Moist, very dense, no odor. Primarily silt and clay with ~5% coarse sand to 2 mm and ~45% medium to fine grained sand. The sand is angular to subangular. The fines have high plasticity, have the 5YR 4/4 coloring, and do not react to HCl. Strong reaction on gray clasts.</p>					
85	4270	SW	<p><b>Well Graded Sand (82 - 92)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~5-10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
90	4265							
	4260	SM	<p><b>Silty Sand (92 - 94)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
95		SC	<p><b>Clayey Sand (94 - 98)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 4/4 coloring, and have no reaction to strong reaction</p>					

LEP-MW-4I screened from 86 - 96 ft bgs



# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-4I

Sheet 5 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			to HCl. Strong HCl reaction on gray clasts in this clayey sand.					
100	4255	CL	<b>Sandy Lean Clay (98 - 104)</b> Moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 10 mm and ~40% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have high plasticity, have the 5YR 4/4 coloring, and have no reaction to a weak reaction to HCl. Gray Clasts have strong reaction to HCl.					
105	4250	SC	<b>Clayey Sand (104 - 106)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, have the 5YR 4/3 coloring, and have no reaction to a weak reaction to HCl.  Bottom of Borehole at 106 feet below ground surface.					
110	4245							
115	4240							
120	4235							

# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-8I

Sheet 1 of 5

Boring Location: On Site, north of Pumpback Well System	Northing: 1556454.1	Easting: 324349.8
Drilling Contractor: Cascade Drilling Inc.	Top of PVC Elevation: 4353.6 feet amsl	Ground Surface Elevation: 4351.8 feet amsl
Drilling Equipment: CS 500 Sonic Drill Rig	Date Started: 3/3/09	Date Finished: 3/4/09
Drilling Method: Sonic, utilized 4" core barrel	Completed Depth: 108 fbgs	Water Depth: 20.5 fbmp
Sampling Method: NA	Driller: R. LaBrosse Sr.	WELL CONSTRUCTION
Well Seal: NA	Borehole Diameter: 6	Type and Diameter of Well Casing: 2-inch Schedule 40 PVC
Logged By: C. Strauss	Drilling Fluid: NA	Slot Size: 0.020
		Filter Material: #3 Silica Sand

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4350			No Recovery (0 - 6) No recovery due to vacuum truck removal.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5								Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.
4345		SM	Silty Sand (6 - 8) Dry, loose to dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
10			No Recovery (8 - 12)					All depths are below land surface unless stated otherwise.
4340		CL	Sandy Lean Clay (12 - 13) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have low to high plasticity, and have a weak to strong reaction to HCl. Cemented sand at ~13 ft bgs with strong reaction to HCl.					WELL DESIGN for LEP-MW-8I: PVC Stickup: 1.80 feet Cement - Bentonite Grout: 0 - 75 feet Bentonite Chips: 75 - 78 feet #3 Silica Sand Filter Pack: 78 - 92 feet 2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 80 - 90 feet Additional Bentonite Fill: 92 - 108 feet
15		SP	Poorly Graded Sand (13 - 14) Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4335		SM	Silty Sand (14 - 16) Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.					
		SW	Well Graded Sand (16 - 18.5) Moist, loose to dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The					

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Name: LEP-MW-81

Sheet 2 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SM	<p>finer are nonplastic, and do not react to HCl.</p> <p><b>Silty Sand (18.5 - 19.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 4/4 coloring, and do not react to HCl.</p>					
4330		SC	<p><b>Silty Sand (19.5 - 22)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, have the 5YR 5/4 coloring, and do not react to HCl.</p>					
25		SP	<p><b>Clayey Sand (22 - 24)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20-25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 4/4 coloring, and do not react to HCl.</p>					
4325		SW	<p><b>Poorly Graded Sand (24 - 25.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
30		SC	<p><b>Well Graded Sand (25.5 - 30)</b> Saturated, loose to dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
4320		CL	<p><b>Clayey Sand (30 - 31)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 4/4 coloring, and do not react to HCl.</p>					
35			<p><b>Lean Clay (31 - 44)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~35% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity and are very tough, and do not react to HCl. Section has 5YR 5/4 coloring with Clay 2 5/5B color from 40.5 - 44 ft bgs.</p>					
4315								
40								
4310								
45		SC	<p><b>Clayey Sand (44 - 48)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The</p>					

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-81

Sheet 3 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4305			fines are nonplastic, and do not react to HCl.					
50		CL	<b>Lean Clay (48 - 55)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~40% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity and are very tough, have the 5YR 5/4 coloring, and do not react to HCl.					
55		SW	<b>Well Graded Sand (55 - 60)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
60		SC	<b>Clayey Sand (60 - 66)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 4/4 coloring, and do not react to HCl.					
65								
66		SM	<b>Silty Sand (66 - 74)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have the 5YR 5/2 coloring, and do not react to HCl.					
70								

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-81

Sheet 4 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4280								
75		SC	<b>Clayey Sand (74 - 76)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4275		SW	<b>Well Graded Sand (76 - 78)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
80		SC	<b>Clayey Sand (78 - 80)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a weak reaction to HCl. Section has gray clasts which are highly reactive to HCl.					
4270		SW	<b>Well Graded Sand (80 - 84)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					LEP-MW-81 screened from 80 - 90 ft bgs
85		CL	<b>Lean Clay (84 - 88)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~30% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity, have the 5YR 5/4 coloring, and do not react to HCl.					
4265		SW	<b>Well Graded Sand (88 - 89)</b> Saturated, loose to dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
90		SP-SM	<b>Poorly Graded Sand with Silt (89 - 90.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10-15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4260		CL	<b>Sandy Lean Clay (90.5 - 99)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have high plasticity, have the 5YR 5/6 coloring, and do not react to HCl. Section has oxidized iron banding.					
95								

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Name: LEP-MW-8I

Sheet 5 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4255								
100		SC	Clayey Sand (99 - 100) Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 5/6 coloring, and do not react to HCl.					
		CL	Sandy Lean Clay (100 - 102.5) Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have high plasticity, have the 5YR 5/6 coloring, and do not react to HCl.					
4250		SP	Poorly Graded Sand (102.5 - 104) Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. Section has no reaction to HCl.					
105		CL	Sandy Lean Clay (104 - 106) Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~30% silt and clay. The sand and gravel are angular to subangular. Section has 5YR 5/6 coloring, and does not react to HCl.					
4245		SP	Poorly Graded Sand (106 - 108) Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10-15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
			Bottom of Borehole at 108 feet below ground surface.					
110								
4240								
115								
4235								
120								



# Brown and Caldwell

Carson City, Nevada

## BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-9I

Sheet 1 of 5

Boring Location: On Site, north of Pumpback Well System		Northing: 1555671.1	Easting: 324820.8
Drilling Contractor: Cascade Drilling Inc.		Top of PVC Elevation: 4353.9 feet amsl	
Drilling Equipment: CS 500 Sonic Drill Rig		Ground Surface Elevation: 4352 feet amsl	
Drilling Method: Sonic, utilized 4" core barrel		Date Started: 3/4/09	Date Finished: 3/5/09
Sampling Method: NA		Completed Depth: 108 fbg	Water Depth: 21.07 fbmp
Driller: R. LaBrosse Sr.		WELL CONSTRUCTION	
Well Seal: NA		Type and Diameter of Well Casing: 2-inch Schedule 40 PVC	
Logged By: C. Strauss		Slot Size: 0.020	Filter Material: #3 Silica Sand
Drilling Fluid: NA			

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			No Recovery (0 - 6) No Recovery due to vacuum truck removal.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5								Horizontal Survey data is expressed in the State Plane Coordinate System (SPCS) for Nevada with a Federal Information Processing Standard code, 2703 (FIPS 2703), designated as Nevada State Plane in the North American Datum of 1927 system (NAD27 GRID), West zone, and unit of measurement is feet.
		SW	Well Graded Sand (6 - 8) Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
			No Recovery (8 - 10)					All depths are below land surface unless stated otherwise.
10		SM	Silty Sand (10 - 13) Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					WELL DESIGN for LEP-MW-9I: PVC Stickup: 1.90 feet. Cement - Bentonite Grout: 0 - 89 feet Bentonite Chips: 89 - 92 feet #3 Silica Sand Filter Pack: 92 - 108 feet 2-inch Nominal Schedule 40 PVC (0.020-inch) Slotted Screen: 94 - 104 feet Additional Bentonite Fill: feet
		SW	Well Graded Sand (13 - 18) Moist, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
15								
		SW	Well Graded Sand (18 - 24) Saturated, no odor. Primarily coarse to medium sand with ~15% gravel and ~5-10% silt and clay. The sand and gravel are subangular to rounded. The fines are nonplastic.					

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Name: LEP-MW-91

Sheet 2 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
25	4330							
		SM	<b>Silty Sand (24 - 28)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Section has iron staining.					
30	4325							
		SW	<b>Well Graded Sand (28 - 31)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to rounded. The fines are nonplastic, and do not react to HCl. Strongly oxidized iron rich sands from 30-31 (7.5YR 5/8) ft bgs.					
35	4320							
		SC	<b>Clayey Sand (31 - 34)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, have the 5YR 6/1 coloring, and do not react to HCl. Strongly oxidized zones mixed through section. Zones are no more than 1-2 inches thick, but usually much smaller (with 7.5YR 5/8 coloring).					
		SP	<b>Poorly Graded Sand (34 - 36)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Mainly smaller-end medium and coarser fine sand.					
40	4315							
		CL	<b>Sandy Lean Clay (36 - 38)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have high plasticity, have the 5YR 5/4 coloring, and do not react to HCl.					
		CL	<b>Lean Clay (38 - 48)</b> Dry to moist, dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~35% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity and are very tough, have a gray color (Gley 2 6/5PB), and do not react to HCl.					
45	4310							



# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-91

Sheet 3 of 5

Depth (ft)	Elevation (ftmsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
4305								
50		CL	<b>Lean Clay (48 - 49.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~45% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity and are very tough, have the 5YR 5/6 coloring, and do not react to HCl.					
		SW-SM	<b>Well Graded Sand with Silt (49.5 - 52)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10-15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4300		CL	<b>Sandy Lean Clay (52 - 54.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have moderate to high plasticity, are moderately tough, have the 5YR 5/4 coloring, and have a weak reaction to HCl.					
55		SP	<b>Poorly Graded Sand (54.5 - 56)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Lean Clay (56 - 58.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have high plasticity and are very tough have the 5YR 5/4 coloring, and do not react to HCl.					
60		SC	<b>Clayey Sand (58.5 - 62)</b> Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. Iron staining noted around 61.5 ft bgs.					
4295								
		SW	<b>Well Graded Sand (62 - 64)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
65		SC	<b>Clayey Sand (64 - 65)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (65 - 66.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
4285		CL	<b>Lean Clay (66.5 - 68)</b> Moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 10 mm and ~45% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have high plasticity, and have no reaction to a weak reaction to HCl. From 66.5 - 67 ft bgs section has no reaction to HCl. From 67 - 68 ft bgs section has weak reaction to HCl.					
70		SW						

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Name: LEP-MW-9I

Sheet 4 of 5

Depth (ft)	Elevation (ftmsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75	4280		<p><b>Sandy Lean Clay (68 - 69.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have the 5YR 5/4 coloring, and have no reaction to strong reaction to HCl. Gray, highly reactive clasts present in section.</p> <p><b>Well Graded Sand (69.5 - 77)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
80	4275	SC	<p><b>Clayey Sand (77 - 78)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
		CL	<p><b>Sandy Lean Clay (78 - 81)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have moderate to high plasticity, are moderately tough, have the 2.5YR 4/6 coloring, and do not react to HCl.</p>					
	4270	SM	<p><b>Silty Sand (81 - 83)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
85		SP	<p><b>Poorly Graded Sand (83 - 85.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
	4265	SC	<p><b>Clayey Sand (85.5 - 88)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, have the 2.5YR 4/6 coloring, and have no reaction to a weak reaction to HCl.</p>					
90		CL	<p><b>Lean Clay (88 - 91)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~40% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have high plasticity.</p>					
	4260	SC	<p><b>Clayey Sand (91 - 95)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have the 5YR 5/4 coloring.</p>					
95		SW	<p><b>Well Graded Sand (95 - 98)</b> Primarily medium to fine sand with ~10% gravel and ~10% silt and clay. Section is dense. The fines are</p>					

LEP-MW-9I2 screened from 84 - 104 ft bgs

# BORING LOG

Project Name: PWS Characterization

Project Number: 136739.003

Soil Boring ☐

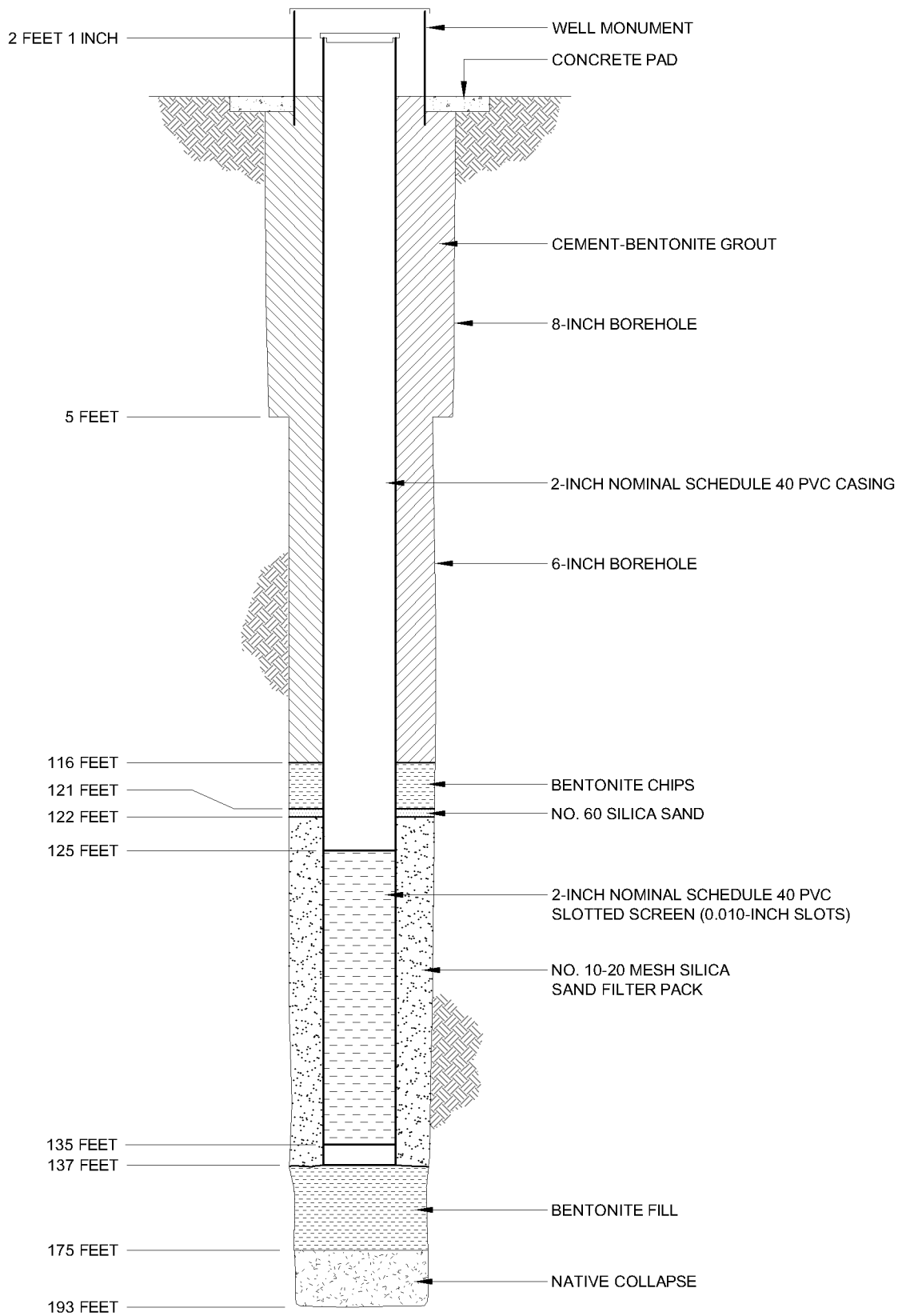
Monitoring Well ☒

Piezometer ☐

Boring/Well Name: LEP-MW-9I

Sheet 5 of 5

Depth (ft)	Elevation (famsl)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
	4255		nonplastic, with more fines (~15%) towards 98 ft bgs.					
		CL	<b>Lean Clay (98 - 101)</b> Primarily silt and clay with ~5% gravel and ~40% medium to fine grained sand.					
100								
	4250	SW	<b>Well Graded Sand (101 - 103)</b> Saturated. Primarily medium to fine sand with ~5% gravel and ~10% silt and clay. Section becomes finer towards the bottom.					
		SM	<b>Silty Sand (103 - 104)</b> Primarily medium to fine sand with ~5% gravel and ~15% silt and clay.					
105		SW	<b>Well Graded Sand (104 - 105)</b> Saturated. Primarily medium to fine sand with ~5% gravel and ~10% silt and clay. The sand and gravel are subangular to rounded.					
		CL	<b>Sandy Lean Clay (105 - 108)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel and ~35% silt and clay.					
	4245							
			Bottom of Borehole at 108 feet below ground surface.					
110								
	4240							
115								
	4235							
120								



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well MW2002-2I  
Construction Details**

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 1 of 11

<b>Boring Location:</b> Inside Mine Site to the Northwest		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 6/29/07	<b>Date Finished:</b> 7/12/07
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 193 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> P. Spillers and C. Strauss		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SP-SM	<b>Poorly Graded Sand with Silt (0 - 21)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 20mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines have no plasticity and low toughness, and have no reaction to a weak reaction to HCl. The zone has a light brown to brown color. Increased calcium carbonate with strong HCl reaction from 7' to 12' and some coarse, subangular gravel up to 70mm below ~7'.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.  Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.  <b>WELL DESIGN for MW2002-2I:</b> PVC Stickup: feet. Cement - Bentonite Grout: 0 - 116 feet Bentonite Chips: 116 - 121 feet No. 60 Silica Sand: 121 - 122 feet #10-20 Silica Sand Filter Pack: 122 - 141 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 125 - 135 feet Native Collapse: 175 - 193 feet Additional Bentonite Fill: 141 - 175 feet  Number of wells at this location: 2 Screen intervals for paired wells are labeled at the installed depths.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 2 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
20								
		CH	<b>Sandy Fat Clay (21 - 22)</b> Dry, very dense, no odor. Primarily silt and clay with ~5% gravel to 20mm, ~10% coarse grain sand, ~15% medium grain sand and ~10% fine grain sand. The sand and gravel are angular to subangular. The fines have moderate to high plasticity, is very tough, and have no reaction to a weak reaction to HCl. The zone is reddish brown in color. Sand is well graded.					
		SM	<b>Silty Sand with Gravel (22 - 24)</b> Dry, dense, no odor. Primarily medium to fine sand with ~20% gravel to 30mm, ~20% coarse grain sand and 20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
25		SP-SM	<b>Poorly Graded Sand with Silt (24 - 31)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to 20mm, ~10% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a weak to strong reaction to HCl. Thin clayey sand seam from 29.5 to 30 feet below ground surface.					
30		SM	<b>Silty Sand (31 - 32.5)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~10% gravel to 20mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (32.5 - 36.5)</b> Slightly moist, no odor. Primarily medium to fine sand with ~10% gravel to 15mm and ~20% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a strong reaction to					

# BORING LOG

**Project Name:** Yerington Second Step Hydrogeologic Framework Assessment

**Project Number:** 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

**Boring/Well Number:** MW2002-21

Sheet 3 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35			HCl.					
		SM	<b>Silty Sand (36.5 - 37.5)</b> Dry, no odor. Primarily medium to fine sand with ~5% gravel to 15mm, ~15% coarse grain sand and ~10% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Clayey Sand (37.5 - 39)</b> Dry, very dense, no odor. Primarily fine sand with ~5% coarse grain sand to 5mm with ~ 20% medium grain sand and ~25% silt and clay. The sand is subangular to subrounded. The fines have low to medium plasticity with low toughness, and do not react to HCl.					
40		SP-SM	<b>Poorly Graded Sand with Silt (39 - 41)</b> Very moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15mm, ~15% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (41 - 43)</b> Moist to saturated, very dense, no odor. Primarily silt and clay with ~5% gravel to 15mm, ~10% coarse grain sand, ~25% medium to fine grain sand. The sand and gravel are subangular. The fines have low to medium plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand (43 - 44)</b> Moist to saturated, no odor. Primarily medium to fine sand with ~5% gravel to 15mm, ~15% coarse grain sand and ~30% silt and clay. The sand and gravel are subangular. The fines have low to medium plasticity and toughness, and have a strong reaction to HCl.					
45		SP-SC	<b>Poorly Graded Sand with Clay (44 - 60)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15mm, ~5% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak reaction to HCl.					
50								
								MW-2002-2S screened from 51 to 61 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 4 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55								
60		SC	<b>Clayey Sand (60 - 64)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15mm, ~10% coarse grain sand and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have low to medium plasticity and toughness, and have a weak reaction to HCl.					
65		SC	<b>Clayey Sand (64 - 66)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15mm, ~5% coarse grain sand and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, and have a weak reaction to HCl.					
		SC	<b>Clayey Sand (66 - 68)</b> Moist, no odor. Primarily medium to fine sand with ~5% gravel to 25mm, ~10% coarse grain sand and ~40% silt and clay. The sand and gravel are subangular. The fines have moderate to high plasticity, is very tough, and have a weak reaction to HCl.					
70		SC	<b>Clayey Sand (68 - 72)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 40mm with ~ 15% coarse sand and ~25% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have no reaction to a weak reaction to HCl.					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 5 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75		SC	<b>Clayey Sand (72 - 80)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20mm, ~10% coarse grain sand and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines have moderate to high plasticity, are very tough, and have a weak reaction to HCl.					
80		SC	<b>Clayey Sand (80 - 82)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20mm with ~20% coarse sand and ~20% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a weak reaction to HCl.	MW2002-2I@80-85				
		SC	<b>Clayey Sand (82 - 84.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~5% coarse grain sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak reaction to HCl.					
85		SC	<b>Clayey Sand with Gravel (84.5 - 88)</b> Moist to saturated, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 40mm with ~30% fine grain sand~ and 20% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a weak reaction to HCl.					
		SM	<b>Silty Sand (88 - 90)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~10% coarse grain sand and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and have a strong reaction to HCl.					
90		SM	<b>Silty Sand (90 - 100)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 20mm, ~10% coarse grain					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 6 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95			sand and ~15% silt and clay. The sand and gravel are subangular. The fines are nonplastic to low plasticity and toughness, and have a weak reaction to HCl. There is increased coarse sand and gravel from 96 to 100 feet below ground surface.					
100		SM	<b>Silty Sand (100 - 104)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~10% coarse grain sand and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and have a weak to strong reaction to HCl. There are increased fines compared to 96-100 feet zone and increased gravel from 103 to 104 feet.					
105		SC	<b>Clayey Sand with Gravel (104 - 110)</b> Dry to slightly moist, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 90mm, ~15% coarse grain sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have moderate to high plasticity, is very tough, and do not react to HCl.					
110								

MW2002-2I@95-100

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 7 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115		SM	<b>Silty Sand (110 - 111)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20mm, ~15% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and do not react to HCl.					
		SC						
			<b>Clayey Sand (111 - 118)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20mm, ~10% coarse grain sand and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity, are very tough, and have no reaction to a weak reaction to HCl. There is a silty sand lens from 114 to 115 feet similar to 110-111 feet zone.					
120		SP-SM	<b>Poorly Graded Sand with Silt (118 - 130)</b> Saturated, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30mm, ~20% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl. Fines vary from 10% to 15%. More gravel, ~20%, from 123 to 124 feet below ground surface.					
125								

MW-2002-2I screened from 125 to 135 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 8 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130		SP-SM	<b>Poorly Graded Sand with Silt (130 - 131.5)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 60mm, ~15% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and do not react to HCl.	MW2002-2I@129-134				
		SC	<b>Clayey Sand (131.5 - 133)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 25mm, ~15% coarse grain sand and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak to strong reaction to HCl.					
		SP-SM	<b>Poorly Graded Sand with Silt (133 - 136)</b> Saturated, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 60mm, ~15% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and do not react to HCl.					
135		CL	<b>Sandy Lean Clay (136 - 137.5)</b> Dry to slightly moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 10mm, ~15% coarse grain sand and ~25% medium to fine grain sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak reaction to HCl.					
		SM	<b>Silty Sand (137.5 - 139)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10mm, ~10% coarse grain sand and ~25% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		CL	<b>Sandy Lean Clay (139 - 140)</b> Dry to slightly moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 10mm, ~15% coarse grain sand and ~25% medium to fine grain sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak reaction to HCl.					
140		SP-SM	<b>Poorly Graded Sand with Silt (140 - 142.5)</b> Moist, very dense, no odor. Primarily coarse to fine sand with ~15% gravel to 20mm and ~10% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a weak reaction to HCl.					
		CL	<b>Sandy Lean Clay (142.5 - 145)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 15mm, ~5% coarse grain sand and ~30% medium to fine grain sand. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, and have a weak to strong reaction to HCl.					
145		SC	<b>Clayey Sand (145 - 148)</b> Dry to moist, very dense, no odor. Primarily coarse to fine sand with ~10% gravel to 15mm and ~40% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025










Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 9 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150		SC	<b>Clayey Sand (148 - 154)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15mm, ~10% coarse grain sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
155		CL	<b>Sandy Lean Clay (154 - 156)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 25mm, ~10% coarse grain sand and ~40% medium to fine grain sand. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SP-SM	<b>Poorly Graded Sand with Silt (156 - 159)</b> Saturated, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30mm, ~10% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
160		CL	<b>Sandy Lean Clay (159 - 167)</b> Moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 15mm, ~10% coarse grain sand and ~30% medium to fine grain sand. The gravel is subangular and the sand is subrounded. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
165								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet 10 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170		SW-SM	<b>Well-Graded Sand with Silt (167 - 168)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 30mm, ~10% coarse grain sand and ~15% silt and clay. The gravel is subangular and the sand is subrounded. The fines are nonplastic, and do not react to HCl.	MW2002-2I@ 165-170				
		SM						
		CL	<b>Silty Sand (168 - 169)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~10% coarse grain sand and ~25% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and do not react to HCl.					
		SP	<b>Sandy Lean Clay (169 - 170)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 20mm, ~5% coarse grain sand and ~30% medium to fine grain sand. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
175			<b>Poorly Graded Sand (170 - 176)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 25mm, ~5% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (176 - 177.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 50mm, ~15% coarse grain sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
180		SM	<b>Silty Sand (177.5 - 181.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		CL	<b>Sandy Lean Clay (181.5 - 184)</b> Dry, very dense, no odor. Primarily silt and clay with ~5% gravel to 30mm and ~35% medium to fine grain sand. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity and toughness, and have a strong reaction to HCl.					
185		SM	<b>Silty Sand (184 - 186)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15mm with ~10% coarse grain sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
			<b>Well-Graded Sand (186 - 188.5)</b>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


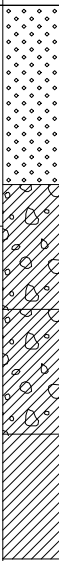
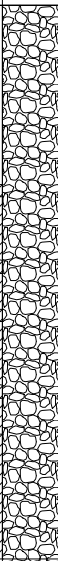
Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: MW2002-2I

Sheet **11** of **11**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
190		SW	Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15mm with ~10% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Three-inch diameter granite flow deposits at 188.5 feet below ground surface.	MW2002-2I@ 184-189				
		CL	<b>Sandy Lean Clay with Gravel (188.5 - 190)</b> Dry, very dense, no odor. Primarily silt and clay with ~20% gravel with ~10% coarse grain sand and ~10% medium to fine grain sand. The gravel is subangular. The fines have low plasticity and toughness, and have a strong reaction to HCl. Four inches of tuff at 190 feet below ground surface.					
		CL	<b>Sandy Lean Clay with Gravel (190 - 191.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~15% gravel with ~10% coarse grain sand and ~35% medium to fine grain sand. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		CL	<b>Sandy Lean Clay (191.5 - 193)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 10mm and ~40% medium to fine grain sand. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.  Bottom of Borehole at 193 feet below ground surface.					

# WELL DRILLERS REPORT

Please complete this form in its entirety

PRINT OR TYPE ONLY

NOTICE OF INTENT NO. 10-11-83

1. OWNER Anaconda Minerals ADDRESS AT WELL LOCATION \_\_\_\_\_  
MAILING ADDRESS 555 17th Street Yerington, Nevada  
Denver, Colorado 80202

2. LOCATION NW  $\frac{1}{4}$  SW  $\frac{1}{4}$  Sec. 4 T. 13 N. 8 R. 25 E. Lyon County

PERMIT NO. \_\_\_\_\_ Issued by Water Resources Parcel No. \_\_\_\_\_ Subdivision Name \_\_\_\_\_

3. TYPE OF WORK MONITOR  
New Well ☐ Recondition ☐  
Deepen ☐ Other ☒  
4. PROPOSED USE  
Domestic ☐ Irrigation ☐ Test ☒  
Municipal ☐ Industrial ☐ Stock ☐  
5. TYPE WELL  
Cable ☐ Rotary ☒  
Other ☐

## 6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
Man made - mine waste		0	2	2
Clay - silty		2	5	3
Sand - fine		5	6	1
Sand - well graded		6	8	2
Clay - silty		8	9	1
Sand and clay		9	18	9
Clay - silty		18	22	4
Sand - fine		22	24	2
Clay - silty		24	27	3
Sand - fine		27	29	2
Clay - silty		29	32	3
Sand - fine		32	35	3
Clay - silty		35	37	2
Sand - fine		37	40	3
Clay - medium hard		40	47	7
Sand - fine		47	52	5
Sand - gravelly		52	55	3
Sand - well graded		55	60	5
Clay - silty		60	62	2
Sand - well graded		62	67	5
Sand and clay		67	71	4
Clay - silty		71	75	4
Sand - well graded		75	79	4
Clay - silty		79	83	4
Sand - fine		83	84	1
Clay - silty		84	87	3
Sand - well graded		87	90	3
Clay - silty		90	91	1

Date started 10-27, 1983  
Date completed 10-28, 1983

## 7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump

## BAILER TEST

G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours  
G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours  
G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours

## 8. WELL CONSTRUCTION

Diameter hole 10 inches Total depth 91 feet  
Casing record 10 ft. of 10" casing  
Weight per foot \_\_\_\_\_ Thickness 1/4"  
Diameter From To  
10 inches 0 feet 10 feet  
\_\_\_\_\_ inches \_\_\_\_\_ feet \_\_\_\_\_ feet  
\_\_\_\_\_ inches \_\_\_\_\_ feet \_\_\_\_\_ feet  
\_\_\_\_\_ inches \_\_\_\_\_ feet \_\_\_\_\_ feet  
\_\_\_\_\_ inches \_\_\_\_\_ feet \_\_\_\_\_ feet  
\_\_\_\_\_ inches \_\_\_\_\_ feet \_\_\_\_\_ feet  
Surface seal: Yes ☒ No ☐ Type concrete  
Depth of seal 73 feet  
Gravel packed: Yes ☒ No ☐  
Gravel packed from 73 feet to 91 feet

## Perforations:

Type perforation screened  
Size perforation \_\_\_\_\_  
From Blank 0 feet to 75 feet  
From screened 75 feet to 89 feet  
From blank 89 feet to 91 feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
From \_\_\_\_\_ feet to \_\_\_\_\_ feet

## 9. WATER LEVEL

Static water level 2.9 feet below land surface  
Flow \_\_\_\_\_ G.P.M. \_\_\_\_\_ P.S.I.  
Water temperature \_\_\_\_\_ ° F. Quality \_\_\_\_\_

## 10. DRILLERS CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Lang Exploratory Drilling (Alan Lang Well Contractor Pump Inc.)

Address 185W. 3300 So. SLIC, Utah 84115

Nevada contractor's license number 016675

Nevada contractor's drillers number 020710

Nevada driller's license number 1366

Signed Alan Lang Actual Driller  
Contractor

Date 4-30-84



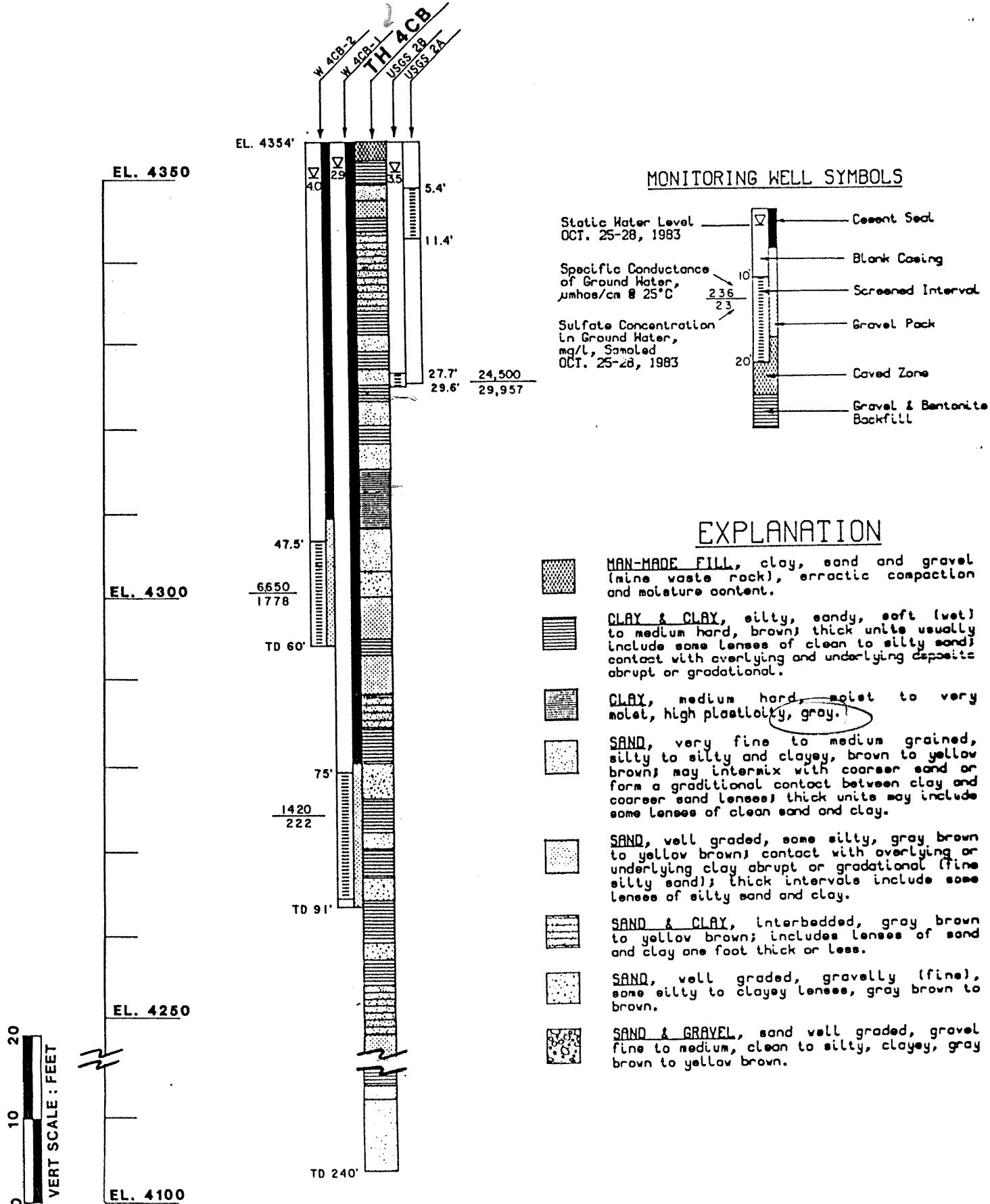


Figure 3 Well Completion Details and Lithologic Log for W4CB Well Site



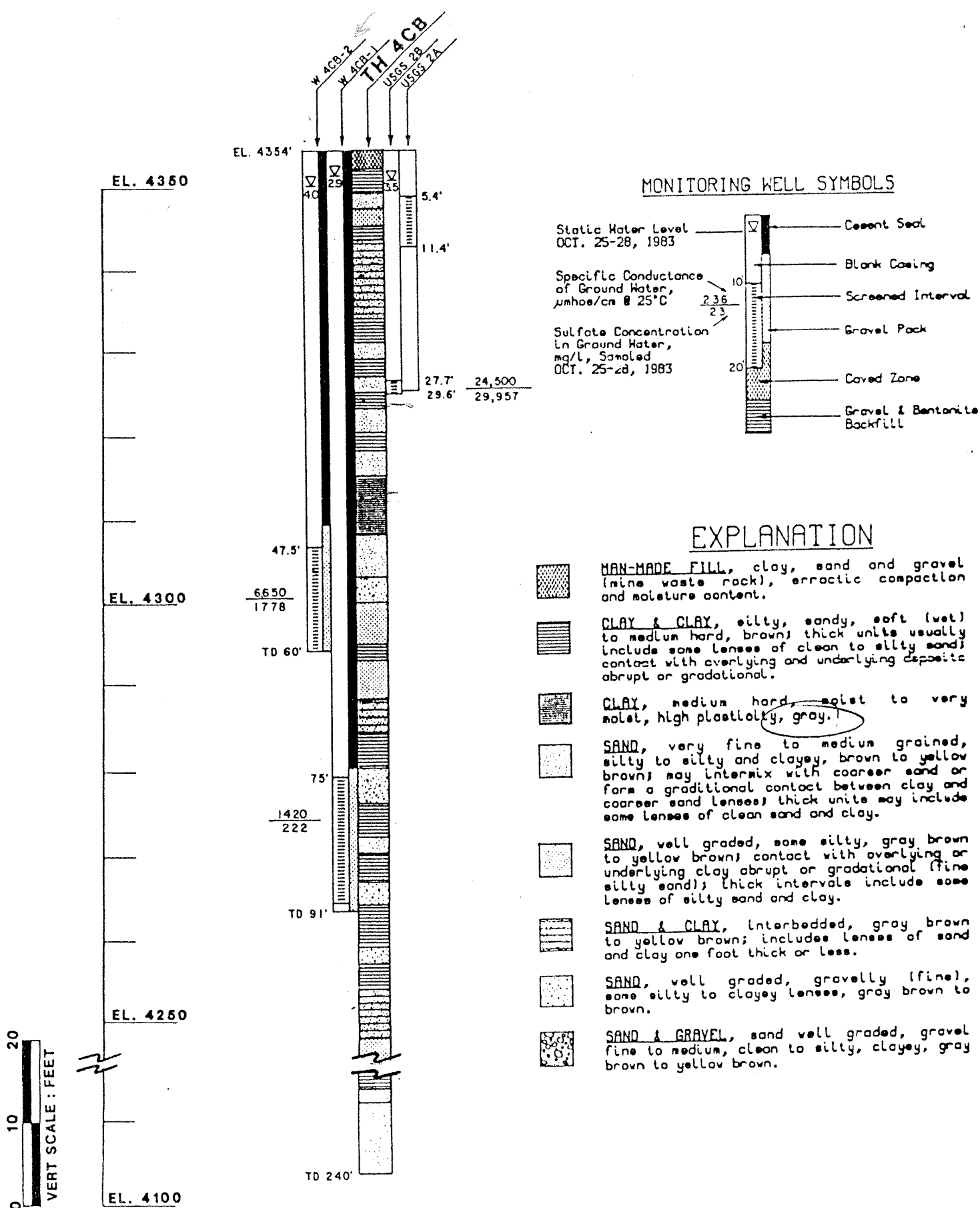


Figure 3 Well Completion Details and Lithologic Log for W4CB Well Site

## WELL DRILLERS REPORT

PRINT OR TYPE ONLY

Please complete this form in its entirety

NOTICE OF INTENT NO. 10-11-83

1. OWNER Anaconda Minerals  
MAILING ADDRESS 555 17th Street  
Denver, Colorado 80202  
ADDRESS AT WELL LOCATION Yearington, Nevada

2. LOCATION NE 1/4 NE 1/4 Sec. 5 T. 13 N. & R. 25 E. Lyon County  
PERMIT NO. Issued by Water Resources Parcel No. Subdivision Name

3. TYPE OF WORK MONITOR  
New Well ☐ Recondition ☐  
Deepen ☐ Other ☒

4. PROPOSED USE  
Domestic ☐ Irrigation ☐ Test ☒  
Municipal ☐ Industrial ☐ Stock ☐

5. TYPE WELL  
Cable ☐ Rotary ☒  
Other ☐

## 6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thick-ness
Sand & clay		0	3	3
Clay - silty		3	7	4
Sand - well graded		7	15	8
Clay - silty		15	17	2
Sand - well graded		17	20	3
Sand - fine		20	22	2
Clay - silty		22	24	2
Sand - fine		24	28	4
Sand - well graded		28	30	2
Clay - silty		30	32	2
Sand - well graded		32	35	3
Sand - fine		35	39	4
Clay - medium hard		39	48	9
Clay - silty		48	56	8
Sand - well graded		56	60	4
Sand & clay		60	66	6
Sand - well graded		66	68	2
Clay - silty		68	72	4
Sand - well graded		72	77	5
Clay - silty		77	82	5
Sand - fine		82	85	3
Clay - silty		85	87	2
Sand - well graded		87	91	4
Sand - fine		91	97	6
Clay - silty		97	101	4
Sand & clay		101	106	5
Sand - well graded		106	110	4

\*\* continued on page 2 \*\*

Date started 10-25, 19.83  
Date completed 10-26, 19.83

## 7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump

## BAILER TEST

G.P.M. Draw down feet hours  
G.P.M. Draw down feet hours  
G.P.M. Draw down feet hours

## 8. WELL CONSTRUCTION

Diameter hole 10 inches Total depth 125 feet  
Casing record 10 ft. of 10"  
Weight per foot Thickness 1/4"  
Diameter From To  
10 inches 0 feet 10 feet  
inches feet feet  
inches feet feet  
inches feet feet  
inches feet feet  
inches feet feet  
inches feet feet  
Surface seal: Yes ☒ No ☐ Type cement  
Depth of seal 51 ft. feet  
Gravel packed: Yes ☒ No ☐  
Gravel packed from 51 feet to 73 feet  
cement 73' to 125'  
Perforations:  
Type perforation screened  
Size perforation  
From Blank 0 feet to 58 feet  
From screened 58 feet to 73 feet  
From Blank 73 feet to 118 feet  
From feet to feet  
From feet to feet

## 9. WATER LEVEL

Static water level 2 feet below land surface  
Flow G.P.M. P.S.I.  
Water temperature ° F. Quality

## 10. DRILLERS CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Lang Exploratory Drilling (Alan Lang Well & Contractor Pump Inc.)

Address 185 W. 3300 So. SLC, Utah 84115  
Contractor

Nevada contractor's license number 016675

Nevada contractor's drillers number 020710

Nevada driller's license number 1366  
Actual Driller

Signed ALAN LANG Contractor

Date 4-30-84



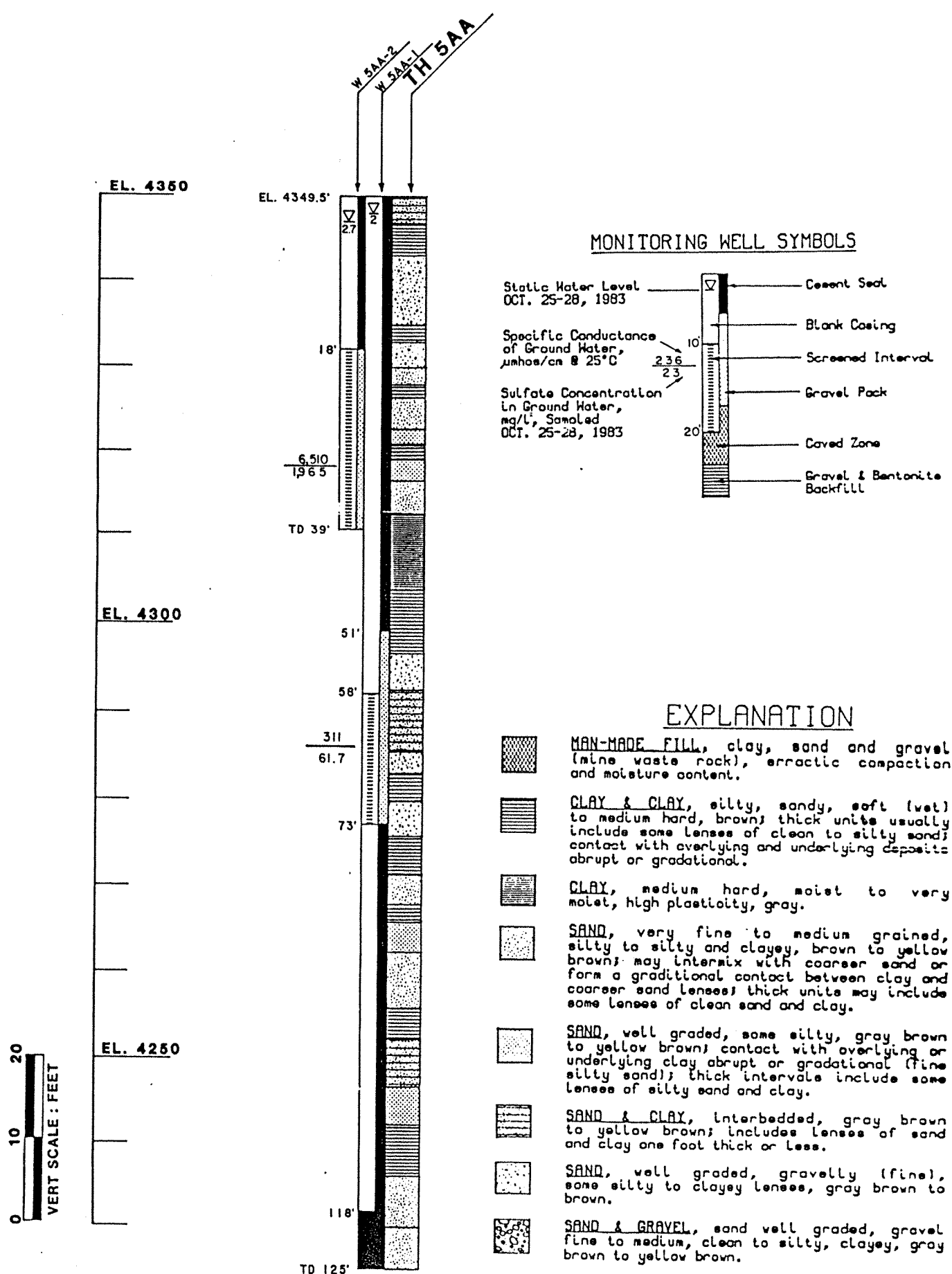


Figure 6 Well Completion Details and Lithologic Log for W5AA Well Site

# FIGURE

## MONITORING WELL W5AB-3 COMPLETION DIAGRAM

PROJECT: YERINGTON  
 DRILLING CO: SARGENT IRRIGATION  
 DRILLER: LARRY RAPRAGER  
 LOGGING  
 COMPANY: CENTURY GEOPHYS.  
 GEOLOGIST: IAN PEARSON

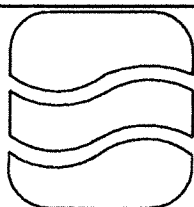
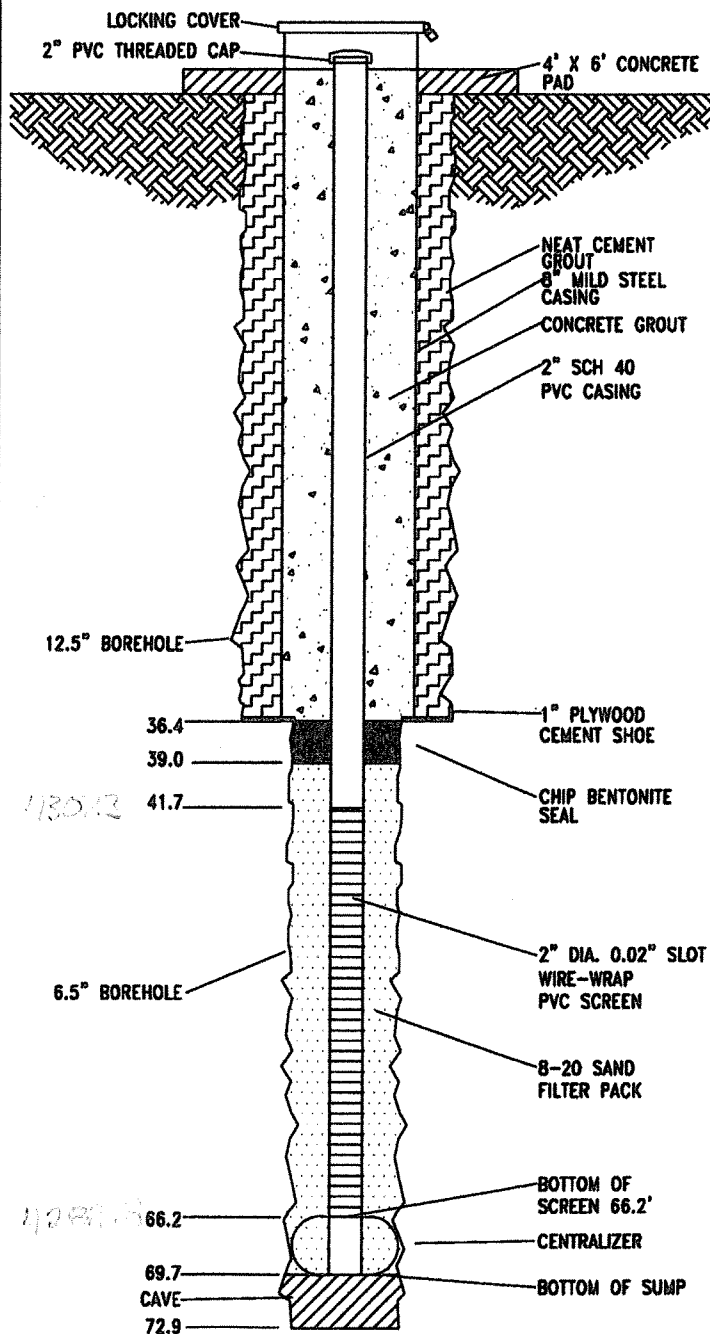
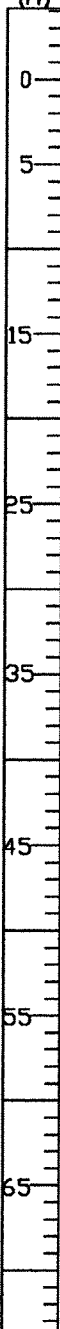
WELL TYPE: MONITORING  
 DRILLING METHOD: MUD ROTARY  
 BORING STARTED: 9/15/97  
 WELL COMPLETED: 9/19/97  
 WELL DEVELOPED: 9/19/97

DATE SURVEYED: \_\_\_\_\_  
 TOP OF WELL  
 CASING ELEV.: ESTIMATED @ 4351.7 ft.  
 NORTHING: 4321.7  
 EASTING: \_\_\_\_\_

### LITHOLOGY LOG

DEPTH (FT)	LITHOLOGY	DEPTH (FT)
0		
10.8	CLAY; silty, brn/gry w/ silty f. sand stringers	
18.5	SAND; med. to cs., sub ang. to sub rounded, dominantly silty f. sand 14-18.5	
24.2	CLAY; silty, brn/gry w/ silty f. sand stringers	
27.7	SAND; silty fine w/ 20% med to cs lithic sand	
42.1	CLAY; silty, brn/gry w/ thin sand stringers (f. to cs.) fl. gry clay approx 38-42'	
44.4	SAND; cs. lithic sub and to sub round	
52.0	CLAY; silty, brn/gry w/ sand interbeds f. to cs. sand	
59.7	SAND/CLAY; (interbed) sand dominant f. to cs. sand	
72.9	CLAY/SAND; (interbeds) clay dominant, silty brn/gry clay w/ up to 40% med. to cs. lithic sand TOTAL DEPTH OF BORING	

### DEPTH (FT)

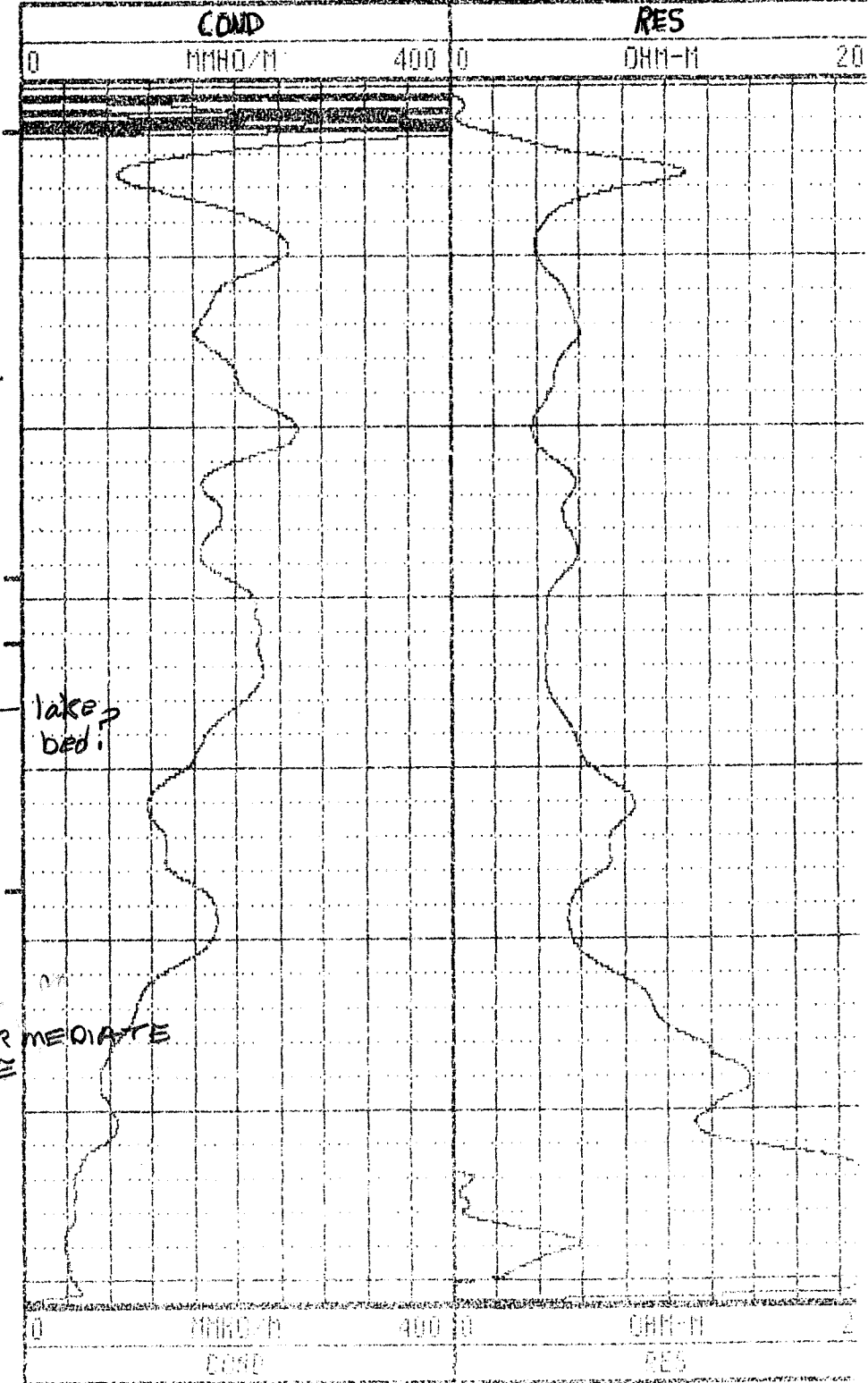


Applied  
 Hydrology  
 Associates, Inc.

### NOTE:

SAND PACK PUMPED INTO PLACE WITH WATER VIA TREMMIE PIPE. SURFACE CASING GROUTED IN PLACE USING THE CASING METHOD

intermediate (zone)  
screened - 2" dia)



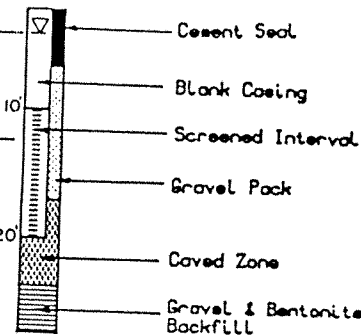


AB3 int med  
AB2-shallow

BB  
4354  
48  
4306  
4348.5  
33  
4315.5

4354  
4315  
39

# MONITORING WELL SYMBOLS



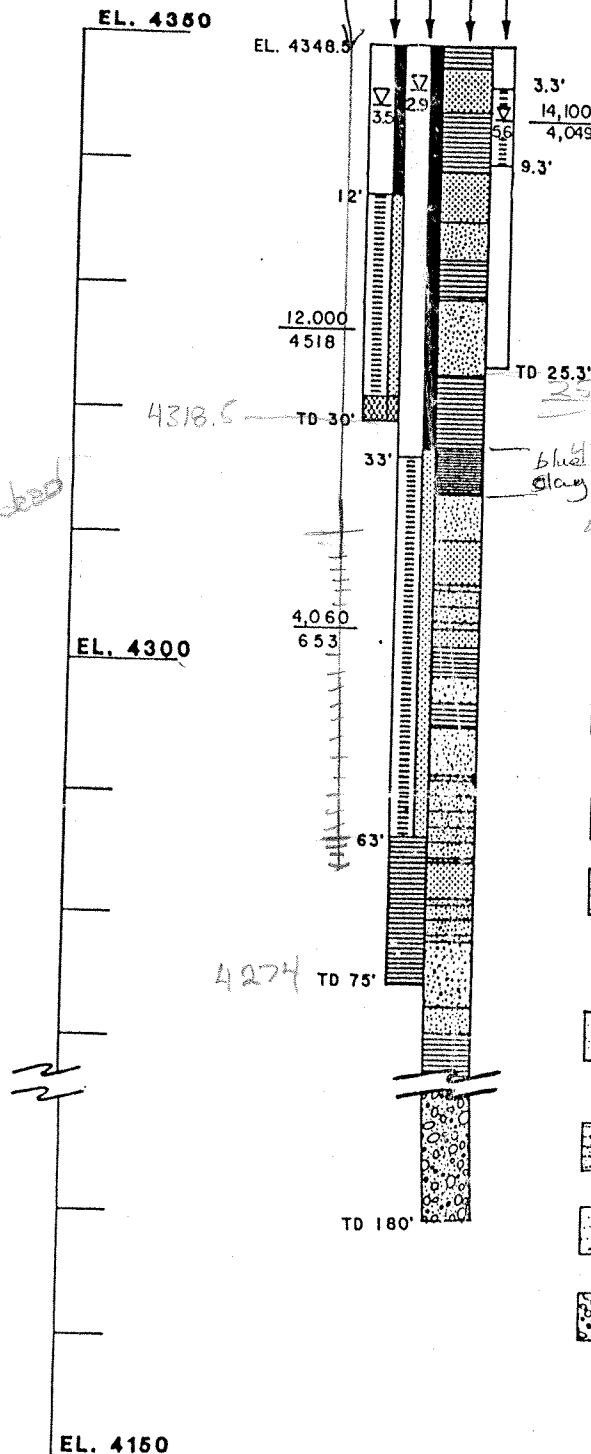
Static Water Level  
OCT. 25-28, 1983

Specific Conductance  
of Ground Water,  
µmhos/cm @ 25°C

Sulfate Concentration  
in Ground Water,  
mg/L, Sampled  
OCT. 25-28, 1983

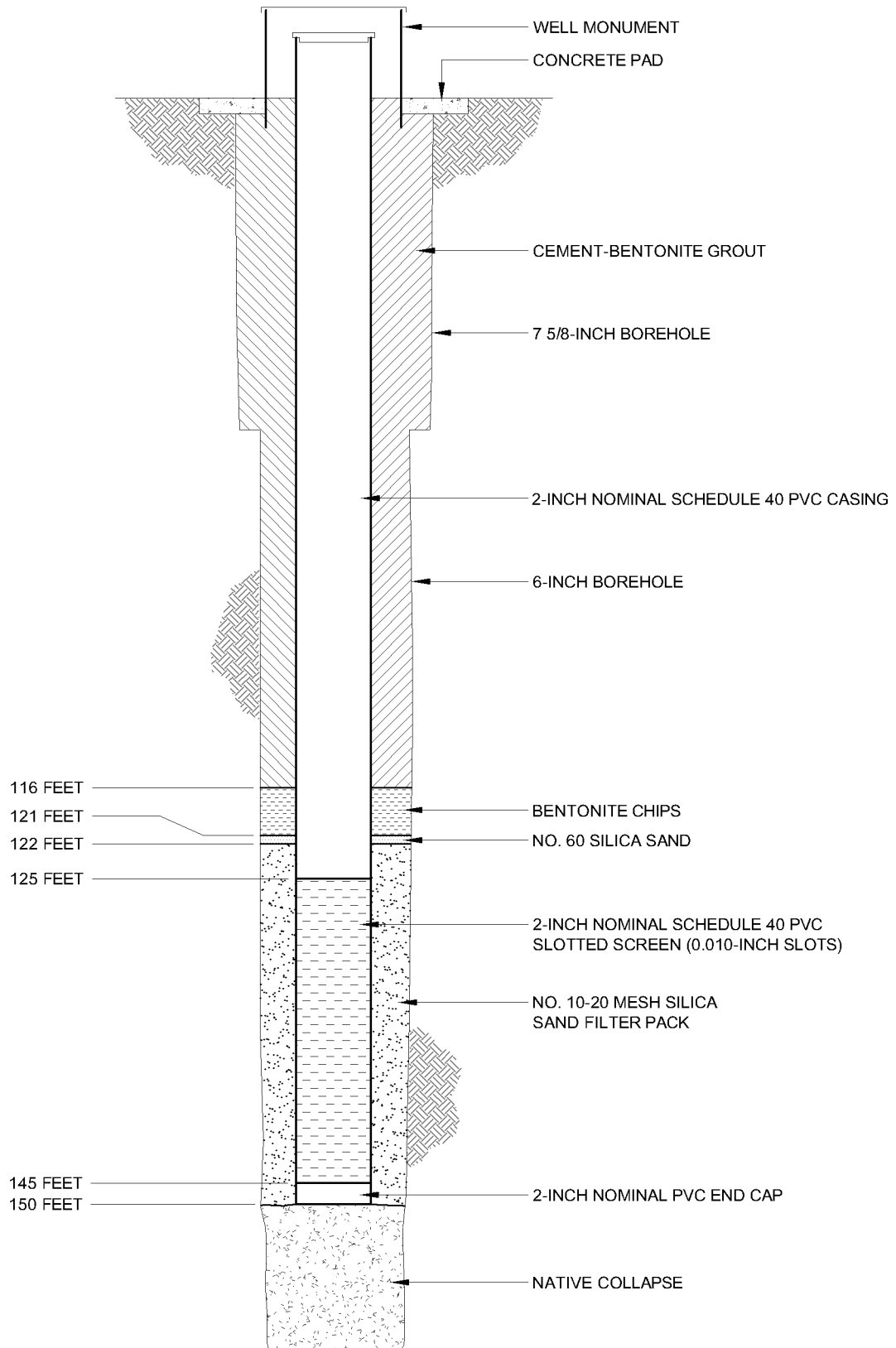
# EXPLANATION

- MAN-MADE FILL**, clay, sand and gravel (mine waste rock), erratic compaction and moisture content.
- CLAY & CLAY**, silty, sandy, soft (wet) to medium hard, brown; thick units usually include some lenses of clean to silty sand; contact with overlying and underlying deposits abrupt or gradational.
- CLAY**, medium hard, moist to very moist, high plasticity, gray.
- SAND**, very fine to medium grained, silty to silty and clayey, brown to yellow brown; may intermix with coarser sand or form a gradational contact between clay and coarser sand lenses; thick units may include some lenses of clean sand and clay.
- SAND**, well graded, some silty, gray brown to yellow brown; contact with overlying or underlying clay abrupt or gradational (fine silty sand); thick intervals include some lenses of silty sand and clay.
- SAND & CLAY**, interbedded, gray brown to yellow brown; includes lenses of sand and clay one foot thick or less.
- SAND**, well graded, gravelly (fine), some silty to clayey lenses, gray brown to brown.
- SAND & GRAVEL**, sand well graded, gravel fine to medium, clean to silty, clayey, gray brown to yellow brown.



VERT SCALE : FEET  
0 10 20

Figure 10 Well Completion Details and Lithologic Log for W5AB Well Site



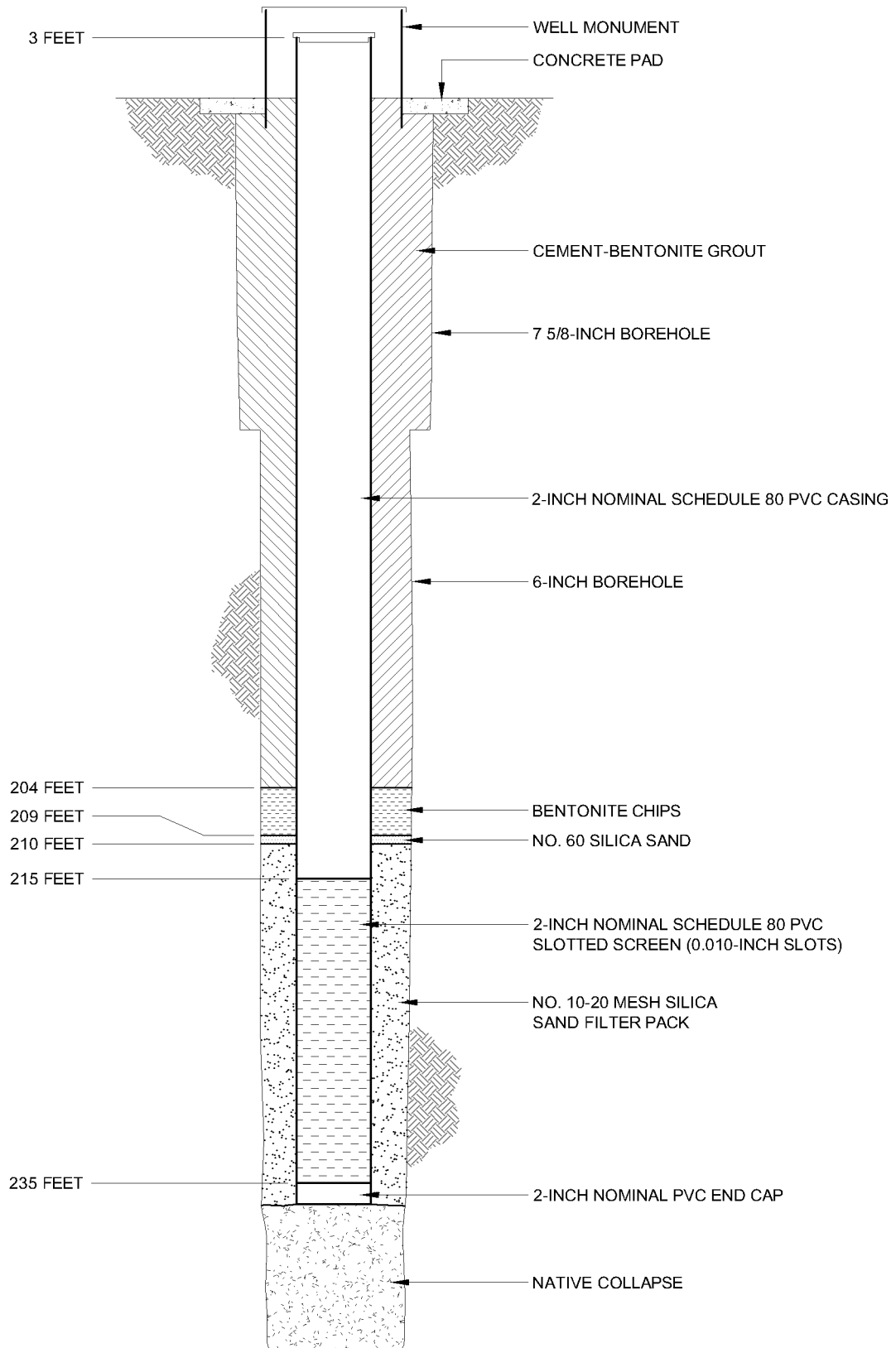
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-111  
Construction Details**



NOT TO SCALE

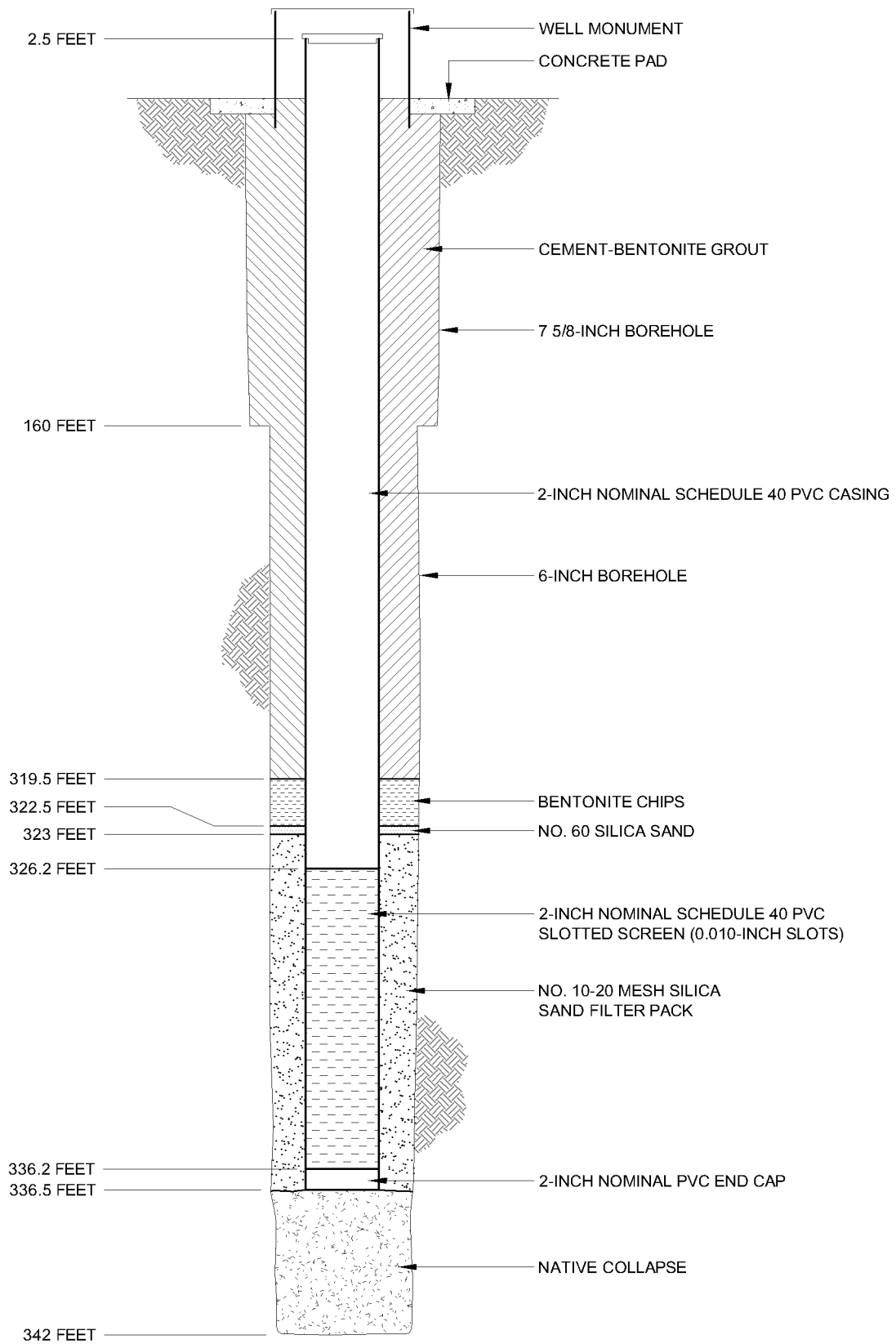
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-112  
Construction Details**



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: April 2006

Atlantic Richfield  
Company

Project: 129684

**Well B/W-1D  
Construction Details**

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 27

Boring Location: <b>North of mine tailings, along Luzier Lane</b>		Elevation: <b>4354.8 feet amsl</b>		East: <b>327095.4</b> North: <b>1557616.9</b>	
Drilling Contractor: <b>WDC</b>		Driller: <b>B. Zamow</b>		Date Started: <b>10/20/05</b> Date Finished: <b>11/5/05</b>	
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>342.0</b>		Water Depth: (feet) <b>17' / 20.16'</b>	
Sampling Method: <b>Core Barrel</b>		Borehole Diameter: <b>6"</b>		Well Diameter and Material: <b>2.5-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" and 7-5/8" casing and a 4.5" core barrel</b>		Screened Interval Well Depth: <b>326.2-336.2 ft., bottom at 336.5 ft.</b>			
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>		Filter Material: <b>#10-20 Silica Sand</b>	
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>			

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	<b>SILTY SAND</b> (0-2 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and react strongly to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
		SC	<b>CLAYEY SAND</b> (2-4 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
		SC	<b>CLAYEY SAND</b> (4-5 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
4350		SP	<b>POORLY-GRADED SAND</b> (5-11 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					Utilized 7-5/8" casing to ~160 feet.
5								All depths are below land surface unless stated otherwise.
								WELL DESIGN for B/W-1D: Screened Interval: 326.2-336.2 feet. Bottom of sump: 336.5 feet.
								Cement Grout: 0-319.5 feet. Bentonite Chips: 319.5-322.5 feet. Filter Pack: #60 Sand 322.5-323 feet, #10-20 Sand 323-336.5 feet.
								Native Collapse: 336.5-342 feet.
								Top of PVC Elevation: 4,357.32 feet, amsl. PVC Stick-up: 2.5 feet above land surface.
4345								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (11-14 feet) Dry to moist, loose, no odor. Primarily coarse to fine sand with ~15% gravel to ~15 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (14-15.5 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
15	4340	SM	<b>SILTY SAND</b> (15.5-16.25 feet) Dry to moist, medium dense, no odor. Primarily medium to coarse sand with ~5% gravel to ~10 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>SILTY SAND</b> (15.5-16.25 feet) Dry to moist, medium dense, no odor. Primarily medium to coarse sand with ~5% gravel to ~10 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (17.25-17.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (17.5-18.25 feet) Moist, medium dense, no odor. Primarily fine sand (<1/2 mm) with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SW-SM	<b>SILTY SAND</b> (18.25-19 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
20	4335	SW	<b>WELL-GRADED SAND with SILT</b> (19-20.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~8 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND</b> (20.5-21.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC						

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 3 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25	4330	SM	<b>WELL-GRADED SAND with SILT</b> (21.5-22 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~8 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>CLAYEY SAND</b> (22-23 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>SILTY SAND</b> (23-23.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (23.75-24.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>WELL-GRADED SAND with SILT</b> (24.5-24.75 feet) Saturated, medium dense, no odor. Primarily fine to medium sand with ~10% coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>SILTY SAND</b> (24.75-25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	<b>SILTY SAND</b> (25-26 feet) Saturated, medium dense, no odor. Primarily medium sand with ~5% gravel to ~8 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (26-26.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand (<1/2 mm) with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with SILT</b> (26.25-27.5 feet) Saturated, medium dense, no odor. Primarily fine to medium sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>CLAYEY SAND</b> (27.5-28.25 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to 1/2 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
30	4325	SP-SM	<b>WELL-GRADED SAND</b> (28.25-29.75 feet) Saturated, loose, no odor. Primarily coarse to medium sand with trace gravel to ~8 mm and trace silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SP-SM	<b>POORLY-GRADED SAND with SILT</b> (29.75-31.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW	<b>POORLY-GRADED SAND with SILT</b> (31.5-34 feet)					
35	4320	SC						
		SW						

B/W-1 @ 28 - 33 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
40	4315	SC	Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW	<b>CLAYEY SAND</b> (34-35 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (35-36.5 feet) Saturated, medium dense, no odor. Primarily medium sand with trace gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (36.5-37 feet)					
		SC	Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (37-39.25 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with trace gravel to ~20 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>CLAYEY SAND</b> (39.25-39.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>CLAYEY SAND</b> (39.5-42.25 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SC	<b>WELL-GRADED SAND with SILT</b> (42.25-43.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~8 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>CLAYEY SAND</b> (43.5-44.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
45	4310	SM	<b>LEAN CLAY with SAND</b> (44.75-46 feet) Dry to moist, firm, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and do not react to HCl. Some black organic streaks and some reddish brown iron oxide streaks.					
			<b>SILTY SAND</b> (46-47.5 feet)					
		SC	Saturated, medium dense, no odor. Primarily fine sand (<1/2 mm) with ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (47.5-48.5 feet) Dry to moist, dense, no odor. Primarily coarse to fine sand to ~3 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					



Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-1**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **5** of **27**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50	4305		to HCl.					
		CL	<b>CLAYEY SAND</b> (48.5-49.75 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SW	<b>SANDY LEAN CLAY</b> (49.75-50.25 feet) Dry to moist, firm, no odor. Primarily silt and clay with ~30% medium to fine sand and trace coarse sand to ~3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and do not react to HCl.					
			<b>WELL-GRADED SAND with GRAVEL</b> (50.25-53.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~10 mm and trace silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (53.5-55 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~50% medium to fine sand and trace coarse sand to ~3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
55	4300	SW	<b>WELL-GRADED SAND</b> (55-56.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~15 mm and trace silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (56.5-58 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~8 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (58-60 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~15 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (60-61 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~10 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
60	4295	SC	<b>CLAYEY SAND</b> (61-63 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					

B/W-1 @ 50 - 55 Ft.

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-1**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **6** of **27**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
65	4290	SM	<b>SILTY SAND</b> (63-63.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines are have slight plasticity, low toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (63.75-65 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (65-67 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (67-67.75 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~15 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (67.75-68.25 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (68.25-69.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~10 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
70	4285	SM	<b>SILTY SAND</b> (69.5-69.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (69.75-70 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~40% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
		SM	<b>SILTY SAND</b> (70-73.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (73.25-74 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~50% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
75	4280	SW-SM	<b>WELL-GRADED SAND with SILT</b> (74-77.5 feet) Saturated, medium dense, no odor. Primarily fine to medium sand with trace coarse sand to ~4					

B/W-1 @ 65 - 70 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 7 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, light brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (77.5-78.5 feet) Saturated, medium dense, no odor. Primarily fine sand (<1/2 mm) with ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (78.5-79.5 feet) Moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
4275		SW	<b>WELL-GRADED SAND</b> (79.5-80 feet) Saturated, medium dense, no odor.					
80		CL	Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	<b>LEAN CLAY with SAND</b> (80-80.5 feet) Dry to moist, hard, no odor.					
		SC	Primarily silt and clay with ~20% fine to medium sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with SILT</b> (80.5-81 feet) Saturated, medium dense, no odor. Primarily fine to medium sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is angular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (81-82 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND</b> (82-83.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
4270		SM	<b>CLAYEY SAND</b> (83.25-83.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
85		SW-SM	<b>WELL-GRADED SAND with SILT</b> (83.5-85.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (85.5-86 feet) Moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are slightly plastic, are brown, and do not react to HCl.					
		SM	<b>WELL-GRADED SAND with SILT</b> (86-88 feet)					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 8 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
90	4265	SW-SM	<p>Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p> <p><b>SILTY SAND</b> (88-90 feet)</p> <p>Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are slightly plastic, are brown, and do not react to HCl.</p> <p><b>WELL-GRADED SAND with SILT</b> (90-92 feet)</p> <p>Saturated, medium dense, no odor. Primarily fine to medium to ~2 mm with ~10% silt and clay. The sand is angular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p>	B/W-1 @ 87 - 92 Ft.				
		SW	<p><b>WELL-GRADED SAND</b> (92-93.75 feet)</p> <p>Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p>					
		SW-SM	<p><b>WELL-GRADED SAND with SILT</b> (93.75-94.75 feet)</p> <p>Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p>					
95	4260	SC	<p><b>CLAYEY SAND</b> (94.75-95.5 feet)</p> <p>Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.</p>					
		SW	<p><b>WELL-GRADED SAND with</b> (95.5-99 feet)</p> <p>Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~12 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p>					
		SM	<p><b>SILTY SAND</b> (99-99.5 feet)</p> <p>Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~8 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p>					
100	4255	SW	<p><b>WELL-GRADED SAND</b> (99.5-100.5 feet)</p> <p>Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p>					
		SM	<p><b>SILTY SAND</b> (100.5-101.5 feet)</p>					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 9 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
105	4250	SC	<p>Saturated, medium dense, no odor.</p> <p>Primarily coarse to medium sand with ~10% gravel to ~8 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.</p> <p><b>CLAYEY SAND</b> (101.5-114 feet)</p> <p>Moist, dense, no odor.</p> <p>Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, medium to low toughness, are brown, and do not react to HCl. Some interbedded saturated silty sand in upper foot of interval and in the lower 3-feet of the interval. Some black organic streaks at ~105 and between ~109 and 110 feet. Some reddish brown iron oxide streaks between ~105 and 107.5 feet, ~108 to 109 feet, and ~110 to 111.5 feet.</p>					
110	4245	SW	<p><b>WELL-GRADED SAND</b> (114-116 feet)</p> <p>Saturated, medium dense, no odor.</p> <p>Primarily medium sand with ~10% coarse sand to ~4 mm</p>					

# BORING LOG

Well Number: B/W-1

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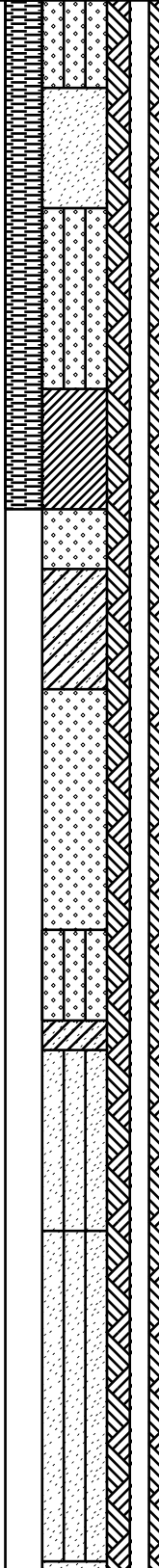
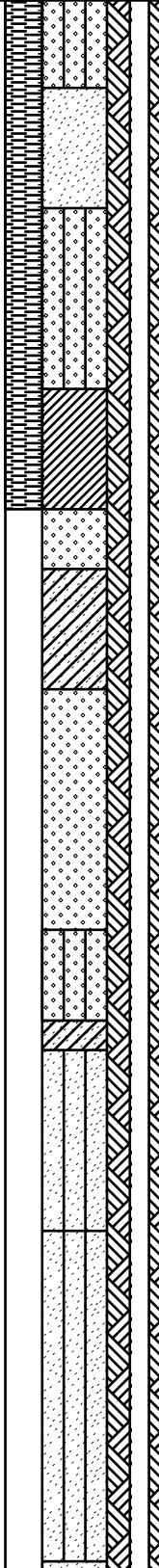
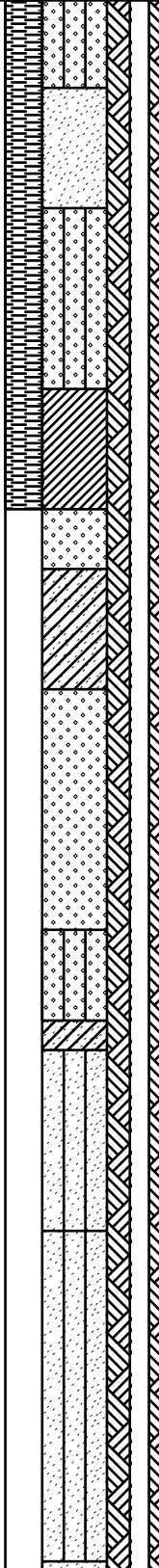
Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115	4240		and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (116-117.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~25% silt and clay. The sand is subangular to subrounded. The fines are slightly plastic, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (117.5-118.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, medium to low toughness, are brown, and do not react to HCl. Some black organic streaks.					
		SP	<b>POORLY-GRADED SAND</b> (118.5-122.5 feet) Saturated, medium dense, no odor. Primarily medium sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
120	4235							
		SW	<b>WELL-GRADED SAND</b> (122.5-125 feet) Saturated, medium dense, no odor. Primarily medium sand with trace coarse sand to ~4 mm and trace silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
125	4230							
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (125-126.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (126.5-127.5 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~50% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown (10YR 5/3), and do not react to HCl.					
		SP-						

SONIC METHOD LOG YERINGTON.GPJ BRN&amp;CALD.GDT 1/31/06

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 11 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
130	4225	SM	<b>POORLY-GRADED SAND with SILT</b> (127.5-129 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (129-132 feet) Saturated, medium dense, no odor. Primarily medium sand with ~5% gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (132-132.5 feet) Moist to saturated, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl. Some reddish brown iron oxide streaks.					
135	4220	SM	<b>SILTY SAND with GRAVEL</b> (132.5-133 feet) Saturated, medium dense, no odor. Primarily coarse to fine sand with ~15% gravel to ~8 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (133-135 feet) Dry to moist, dense, no odor. Primarily fine sand with trace medium sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl. Some reddish brown iron oxide streaks.					
		SW	<b>WELL-GRADED SAND</b> (135-137 feet) Saturated, medium dense, no odor. Primarily medium sand with ~10% coarse sand to ~5 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
140	4215	SM	<b>SILTY SAND</b> (137-138.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>LEAN CLAY with SAND</b> (138.25-140.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl. Some reddish brown iron oxide and black organic streaks. Some interbedded clayey sand, 0.1 to 0.3 feet thick.					
		SW-	<b>WELL-GRADED SAND with SILT</b> (140.5-141.5 feet)					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 12 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
145	4210	SM	Saturated, medium dense, no odor. Primarily medium sand with trace gravel to ~8 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.	BW-1 @ 140 - 145 Ft.				
		SP	<b>POORLY-GRADED SAND</b> (141.5-142.5 feet) Saturated, medium dense, no odor. Primarily medium sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (142.5-144 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>LEAN CLAY with SAND</b> (144-145 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl. Some reddish brown iron oxide streaks.					
		SW	<b>WELL-GRADED SAND</b> (145-145.5 feet) Saturated, medium dense, no odor. Primarily medium sand with trace coarse sand to ~3 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (145.5-146.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl. Some reddish brown iron oxide streaks.					
		SW	<b>WELL-GRADED SAND</b> (146.5-148.5 feet) Saturated, medium dense, no odor. Primarily medium sand with trace coarse sand to ~3 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (148.5-149.25 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~10 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (149.25-149.5 feet) Moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl. Some black organic streaks.					
		SM	<b>SILTY SAND</b> (149.5-151 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
150	4205	SM	<b>SILTY SAND</b> (151-153.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. Some interbedded dry to moist clayey sand.					
		SM						



Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 13 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155	4200	SP	<b>POORLY-GRADED SAND</b> (153.75-155 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl. Some reddish brown iron oxide streaks between 152.5 to 153 feet.	BW-1 @ 155 - 160 Ft.				
		SC	<b>CLAYEY SAND</b> (155-155.5 feet) Moist, dense, no odor.					
		SW	Primarily medium to fine sand to ~1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl. Some black organic streaks.					
			<b>WELL-GRADED SAND</b> (155.5-157 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand with ~5% gravel to ~10 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (157-158 feet) Saturated, medium dense, no odor.					
			Primarily medium to coarse sand with ~10% gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>LEAN CLAY with SAND</b> (158-158.25 feet) Dry to moist, hard, no odor.					
		SW-SM	Primarily silt and clay with ~20% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are pale brown (10YR 6/3), and do not react to HCl.					
160	4195	SC	<b>WELL-GRADED SAND with SILT</b> (158.25-159.5 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand with ~5% gravel to ~8 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>CLAYEY SAND</b> (159.5-161.75 feet) Moist, dense, no odor.					
			Primarily medium to fine sand to ~2 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (161.75-163.75 feet) Moist, dense, no odor.					
			Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (163.75-165 feet) Moist to saturated, dense, no odor.					
			Primarily fine sand (<1/2 mm) with between ~30 and 40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
165	4190	SC	<b>CLAYEY SAND</b> (165-166.5 feet) Dry to moist, dense, no odor.					
			Primarily medium to fine sand to ~1/2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl. Some black organic streaks.					
		SM	<b>SILTY SAND</b> (166.5-168 feet) Saturated, medium dense, no odor.					

## BORING LOG

Well Number: **B/W-1**

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**121243.021**

Sheet **14** of **27**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			Primarily medium to fine sand to ~2 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines have low plasticity, are brown, and do not react to HCl.					
	4185	SP	<b>POORLY-GRADED SAND</b> (168-170 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
170		SC	<b>CLAYEY SAND</b> (170-171 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (171-174.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
	4180	SC	<b>CLAYEY SAND</b> (174.5-176.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
175		SC	<b>CLAYEY SAND</b> (176.5-178 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		CL	<b>LEAN CLAY with SAND</b> (178-178.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are pale brown (10YR 6/3), and do not react to HCl. Some black organic streaks.					
		SC	<b>CLAYEY SAND</b> (178.5-179.5 feet) Dry to moist, dense, no odor.					
	4175	SW-SM	Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			medium plasticity and toughness, are brown, and do not react to HCl. Some iron oxide streaks. <b>WELL-GRADED SAND with SILT</b> (179.5-181 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC						
		SC	<b>CLAYEY SAND</b> (181-181.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl. Some iron oxide streaks.					
		SC	<b>CLAYEY SAND</b> (181-181.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (182.5-184 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
	4170	SC	<b>CLAYEY SAND</b> (184-185 feet) Dry to moist from ~184-184.5 feet, moist 184.5-185 feet, dense, no odor. Primarily medium to fine sand to ~1 mm with ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
185		SP	<b>CLAYEY SAND</b> (185-185.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		CL	<b>POORLY-GRADED SAND</b> (185.5-187.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, dark brown, and do not react to HCl.					
			<b>LEAN CLAY with SAND</b> (187.5-189.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1/2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are pale brown (10YR 6/3), and do not react to HCl. Some black organic streaks.					
	4165	SC	<b>CLAYEY SAND</b> (189.5-191 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
190		CL	<b>LEAN CLAY with SAND</b> (191-192 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1/2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are pale brown (10YR 6/3), and do not react to HCl. Some black organic streaks.					
		SC	<b>CLAYEY SAND</b> (192-192.75 feet) Moist to saturated, dense, no odor. Primarily fine sand (<1/2 mm) with between ~30 and 40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and					
		SW						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
195	4160		do not react to HCl. <b>WELL-GRADED SAND</b> (192.75-195.5 feet) Saturated, medium dense, no odor. Primarily medium sand with ~5% gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.	B/W-1 @ 192 - 197 Ft.				
		SW	<b>WELL-GRADED SAND</b> (195.5-197 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand to ~3 mm and trace silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (197-197.5 feet) Moist, dense, no odor.					
		CL	Primarily fine sand (<1/2 mm) with ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl. <b>LEAN CLAY</b> (197.5-199 feet) Dry to moist, hard, no odor.					
		CL	Primarily silt and clay with ~10% medium to fine sand to ~1/2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Trace black organic streaks.					
200	4155	CL	<b>SANDY LEAN CLAY</b> (199-201.25 feet) Dry to moist, very hard, no odor.					
			Primarily silt and clay with ~50% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Trace black organic streaks.					
		SM	<b>SILTY SAND</b> (201.25-204 feet) Moist, dense, no odor.					
			Primarily medium to fine sand to ~2 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have slight plasticity, are brown, and do not react to HCl.					
205	4150	CL	<b>SANDY LEAN CLAY</b> (204-205.5 feet) Dry to moist, very hard, no odor.					
			Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Some black organic streaks.					
		SC	<b>CLAYEY SAND</b> (205.5-207 feet) Moist, medium dense, no odor.					
			Primarily medium to fine sand to ~2 mm with ~30% silt and					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		CL	<b>LEAN CLAY with SAND</b> (207-208.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
		CL	<b>LEAN CLAY</b> (208.5-209 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	4145	SM	<b>SILTY SAND</b> (209-210.5 feet) Dry to moist, dense, no odor. Primarily coarse to fine sand with ~5% gravel to ~8 mm with ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
210		CL	<b>SANDY LEAN CLAY</b> (210.5-212 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/4), and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (212-212.5 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (212.5-213 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (213-215 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
	4140	SC	<b>CLAYEY SAND</b> (215-217.5 feet) Moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
215		SM	<b>SILTY SAND</b> (217.5-219 feet) Moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SW-	<b>WELL-GRADED SAND with SILT</b> (219-224 feet)					

B/W-1 @ 213 - 218 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
220	4135	SM	Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
225	4130	SC	<b>CLAYEY SAND</b> (224-225 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (225-230.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
230	4125	SW-SM	<b>WELL-GRADED SAND with SILT</b> (230.5-231.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (231.5-234 feet) Dry to moist, moist, dense, no odor. Interbedded clayey sand and sandy clay, 1 to 25 cm thick.					

B/W-1 @ 225 - 230 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
235	4120		Primarily fine sand (<1/2 mm) with between ~25% and 40% silt and clay, interbedded with dry to moist, very hard sandy clay with ~30% fines sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity, medium to low toughness, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (234-235 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~40% fine sand and trace medium sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (235-236 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (236-237 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (237-239 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
240	4115	SW-SM	<b>WELL-GRADED SAND with SILT</b> (239-239.5 feet) Saturated, medium dense, no odor.					
		CL	Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	<b>LEAN CLAY</b> (239.5-240 feet) Dry to moist, hard, no odor.					
		SP	Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (240-240.5 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>POORLY-GRADED SAND</b> (240.5-242.5 feet) Saturated, medium dense, no odor.					
		SW-SM	Primarily medium sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, dark brown, and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (242.5-243.5 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
245	4110	SC	<b>CLAYEY SAND</b> (243.5-244 feet) Moist, medium dense, no odor.					
		SW	Primarily medium to fine sand to ~2 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SW-SM						
			<b>WELL-GRADED SAND</b> (244-244.5 feet) Saturated, medium dense, no odor.					
		CL						

B/W-1 @ 240 - 245 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			Primarily coarse to medium sand with ~10% gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl. <b>WELL-GRADED SAND with SILT</b> (244.5-245 feet) Saturated, medium dense, no odor.					
		SM	Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl. <b>LEAN CLAY with SAND</b> (245-246.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1/2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. <b>SILTY SAND</b> (246.5-249 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand (<1/2 mm) with ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
	4105	SC	<b>CLAYEY SAND</b> (249-251.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl. Some reddish brown iron oxide streaks.					
250		CL	<b>SANDY LEAN CLAY</b> (251.5-252.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5YR 5/3), and do not react to HCl.					
		SM	<b>SILTY SAND</b> (252.5-253 feet) Moist, dense, no odor.					
		CL	Primarily medium to fine sand with trace coarse sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl. <b>LEAN CLAY with SAND</b> (253-254 feet) Dry to moist, hard, no odor.					
	4100	SW-SM	Interbedded lean clay with sand and sand with silt as described at 254 feet, 1 to 5 cm thick. Primarily silt and clay with ~20% medium to fine sand to ~1/2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
255		CL	<b>WELL-GRADED SAND with SILT</b> (254-255 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl. <b>SANDY LEAN CLAY</b> (255-258 feet) Dry to moist, hard, no odor. Interbedded sandy lean clay with sand with silt as described at 254 feet, 1 to 5 cm thick. Primarily silt and clay with ~50% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (258-260.5 feet) Dry to moist, dense, no odor.					



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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
260	4095		Primarily medium to fine sand to ~2 mm with ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SP	<b>POORLY-GRADED SAND</b> (260.5-261.5 feet) Saturated, medium dense, no odor. Primarily medium sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (261.5-263 feet) Dry to moist, dense, no odor. Primarily fine sand (<1/2 mm) with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (263-264 feet) Saturated to moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (264-265 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
265	4090	CL	<b>SANDY LEAN CLAY</b> (265-266.75 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SM	<b>SILTY SAND</b> (266.75-267.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (267.5-268.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (268.5-270 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand to ~4 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
270	4085	CL	<b>LEAN CLAY with SAND</b> (270-271.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					

B/W-1 @ 260 - 265 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
275	4080	SM	<b>SILTY SAND</b> (271.5-273 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (273-275 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~35% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Trace reddish brown iron oxide.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (275-277.25 feet) Saturated, medium dense, no odor. Primarily fine to medium sand with ~10% coarse sand to ~5 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (277.25-278 feet) Moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
280	4075	SM	<b>SILTY SAND</b> (278-279 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (279-279.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (279.5-280 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~50% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (280-280.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (280.5-282 feet) Saturated, medium dense, no odor. Primarily medium sand with ~5% gravel to ~6 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (282-290 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
285	4070		subrounded. The fines are nonplastic, brown, and do not react to HCl.					
290	4065	SW	<b>WELL-GRADED SAND</b> (290-295.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~10 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
295	4060	SM	<b>SILTY SAND</b> (295.5-297.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1/2 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (297.5-298.5 feet)					

SONIC METHOD LOG YERINGTON.GPJ BRN&amp;CALD.GDT 1/31/06

B/W-1 @ 285 - 290 Ft.

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-1**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **24** of **27**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
300	4055		Moist to saturated, medium dense, no odor. Primarily fine sand (<1/2 mm) with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (298.5-298.75 feet)					
		SM	Dry to moist, dense, no odor. Primarily fine sand (<1/2 mm) with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown, and do not react to HCl.					
			<b>SILTY SAND</b> (298.75-300 feet)					
			Saturated, medium dense, no odor.					
		SP	Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>POORLY-GRADED SAND</b> (300-302 feet)					
			Saturated, medium dense, no odor.					
			Primarily medium sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
305	4050	SM	<b>SILTY SAND</b> (302-302.75 feet)					
			Dry to moist, dense, no odor.					
			Primarily medium to fine sand to ~2 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (302.75-303.25 feet)					
			Moist, dense, no odor.					
		CL	Primarily fine sand (<1/2 mm) with ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (303.25-303.5 feet)					
		SM	<b>LEAN CLAY</b> (303.25-303.5 feet)					
			Dry to moist, hard, no odor.					
			Primarily silt and clay with ~10% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/3), and do not react to HCl.					
310	4045	SP	<b>CLAYEY SAND</b> (303.5-303.75 feet)					
			Moist, dense, no odor.					
			Primarily fine sand (<1/2 mm) with ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
			<b>SILTY SAND</b> (303.75-305 feet)					
			Moist, very dense, no odor.					
			Primarily fine sand with ~10% medium sand to ~1 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>POORLY-GRADED SAND</b> (305-308.5 feet)					
			Saturated, medium dense, no odor.					
			Primarily medium to fine sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (308.5-309 feet)					
			Moist to saturated, medium dense, no odor.					
		SP	Primarily fine sand (<1/2 mm) with ~15% silt and clay. The sand is subangular to subrounded. The fines have slight plasticity, are brown, and do not react to HCl.					
			<b>POORLY-GRADED SAND</b> (309-310 feet)					
			Saturated, medium dense, no odor.					
			Primarily medium to fine sand to ~2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		NR	<b>NO RECOVERY</b> (310-313 feet)					
			Hard drilling, likely fine-grained.					

B/W-1 @ 305 - 310 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 25 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
315	4040	SC	<b>CLAYEY SAND</b> (313-316 feet) Dry to moist, very dense, no odor. Primarily fine sand (<1/2 mm) with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (316-318 feet) Moist, dense, no odor. Primarily fine sand (<1/2 mm) with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
320	4035	CL	<b>LEAN CLAY with SAND</b> (318-321 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~15% fine sand (< 1/2 mm). The sand is subangular to subrounded. The fines have medium to high plasticity, medium toughness, are yellowish brown (10YR 5/4), and do not react to HCl. Trace black organic streaks.					
		SM	<b>SILTY SAND</b> (321-321.5 feet) Moist, dense, no odor. Primarily fine sand (<1/2 mm) with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL						
		SW	<b>LEAN CLAY with SAND</b> (321.5-322 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~15% fine sand (< 1/2 mm). The sand is subangular to subrounded. The fines have medium to high plasticity, medium toughness, are yellowish brown (10YR 5/4), and do not react to HCl. Trace black organic streaks.					
			<b>WELL-GRADED SAND</b> (322-324.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3					

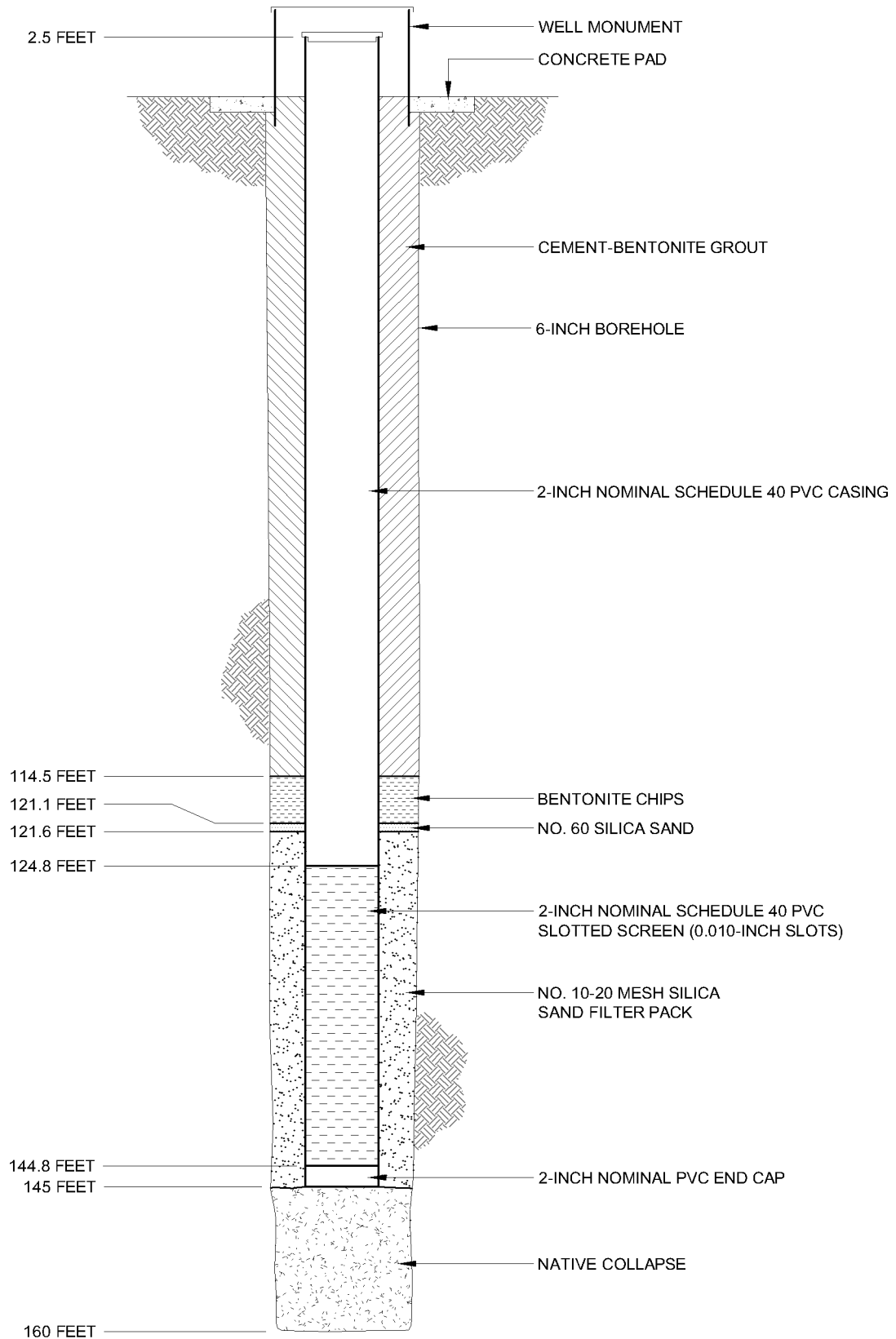
Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 26 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
325	4030	SC	mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl. <b>CLAYEY SAND</b> (324.5-329 feet) Moist, dense, no odor. Primarily fine sand (<1/2 mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
330	4025	SC	<b>CLAYEY SAND</b> (329-330 feet) Dry to moist, dense, no odor. Primarily fine sand (<1/2 mm) with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (330-332 feet) Saturated, medium dense, no odor. Primarily medium sand with trace gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (332-332.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (332.5-335 feet) Saturated, medium dense, no odor. Primarily medium sand with trace gravel to ~8 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
335	4020	SM	<b>SILTY SAND</b> (335-336.5 feet) Moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (336.5-337 feet) Dry to moist, dense, no odor.					

B/W-1 @ 330 - 335 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-1Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 27 of 27

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	Primarily fine sand with trace medium sand to ~1 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl. <b>SILTY SAND</b> (337-339 feet) Moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
	4015	SC	<b>CLAYEY SAND</b> (339-341.5 feet) Moist, dense to very dense, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					
340		SM	<b>CLAYEY SAND</b> (339-341.5 feet) Moist, dense to very dense, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and do not react to HCl.					



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: April 2006

Atlantic Richfield  
Company

Project: 129684

**Well B/W-2D  
Construction Details**



Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 13

Boring Location: <b>North of mine tailings, along Sunset Hills Dr.</b>		Elevation: <b>4348.9 feet amsl</b>		East: <b>322542.6</b> North: <b>1557979.5</b>	
Drilling Contractor: <b>WDC</b>		Driller: <b>B. Zamow</b>		Date Started: <b>9/7/05</b> Date Finished: <b>9/10/05</b>	
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>160.0</b>		Water Depth: (feet) <b>16' / 16.18'</b>	
Sampling Method: <b>Core Barrel</b>		Borehole Diameter: <b>6"</b>		Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>124.8-144.8 ft., bottom at 145.0 ft.</b>			
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>		Filter Material: <b>#10-20 Silica Sand</b>	
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>			

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SC	<b>CLAYEY SAND</b> (0-1 feet) Dry, loose to medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, do not react to HCl from land surface to 1 foot, but react strongly from 1 to 4 feet.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
4345		SM	<b>SILTY SAND</b> (4-7 feet) Dry, loose, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
5		SW	<b>WELL-GRADED SAND</b> (7-10 feet) Dry, loose, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
4340								All depths are below land surface unless stated otherwise.
								WELL DESIGN for B/W-2D: Screened Interval: 124.8-144.8 feet. Bottom of sump: 145 feet.
								Cement Grout: 0-114.5 feet. Bentonite Chips: 114.5-121.1 feet. Filter Pack: #60 Sand 121.1-121.6 feet, #10-20 Sand 121.6-145 feet. Native Collapse: 145-160 feet.
								Depth to Water Measuring Point is Top of PVC Casing.
								Top of PVC Elevation: 4,351.39 feet, amsl. PVC Stick-up: 2.5 feet above land surface.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	<b>SILTY SAND</b> (10-13.5 feet) Dry, loose to medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4335	SC	<b>CLAYEY SAND</b> (13.5-16 feet) Moist, dense, no odor. Primarily fine sand (<0.5 mm) with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
15		SM	<b>SILTY SAND</b> (16-17.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% fine sand, ~5% fine gravel to ~7 mm, and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (17.25-18 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% fine sand, ~5% fine gravel to ~8 mm, and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>LEAN CLAY</b> (18-18.75 feet) Dry to moist, hard, no odor.					
	4330	SP-SM	Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 4/3), and do not react to HCl. <b>POORLY-GRADED SAND with SILT</b> (18.75-23.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to 2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
20								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 3 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25	4325	CL	<b>SANDY LEAN CLAY</b> (23.75-24.75 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~40% medium to fine sand and trace coarse sand to ~3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
		SM	<b>SILTY SAND</b> (24.75-25 feet)					
		CL	Saturated, loose, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	<b>SANDY LEAN CLAY</b> (25-26.5 feet) Moist, no odor. Primarily silt and clay with ~35% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness. Some black organic staining.					
		SW-SM	<b>CLAYEY SAND</b> (26.5-27 feet) Saturated, loose, no odor.					
		CL	Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (27-27.25 feet) Saturated, medium dense, no odor.					
	4320		Primarily medium to fine sand with trace coarse sand to ~4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (27.25-30 feet) Moist, hard, no odor.					
			Primarily silt and clay with ~30% medium to fine sand to ~1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
		SM	<b>SILTY SAND</b> (30-30.5 feet)					
		SM	Saturated, loose, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SILTY SAND</b> (30.5-33 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (33-37 feet) Saturated, medium dense, no odor.					
	4315		Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
35								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4310		SP-SM	<b>POORLY -GRADED SAND with SILT</b> (37-41.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4305		CL	<b>LEAN CLAY</b> (41.5-53.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~10% medium to fine sand (<1 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 4/3), and do not react to HCl.					
4300								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 5 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50								
	4295	SM	<b>SILTY SAND</b> (53.5-55 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
55		CL	<b>SANDY LEAN CLAY</b> (55-60 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	4290							
60		SM	<b>SILTY SAND</b> (60-61.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (61.5-64 feet) Moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have					

B/W-2 @ 52 - 57 Ft.

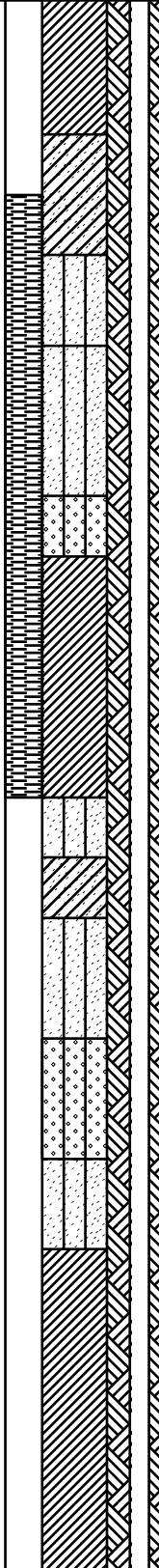
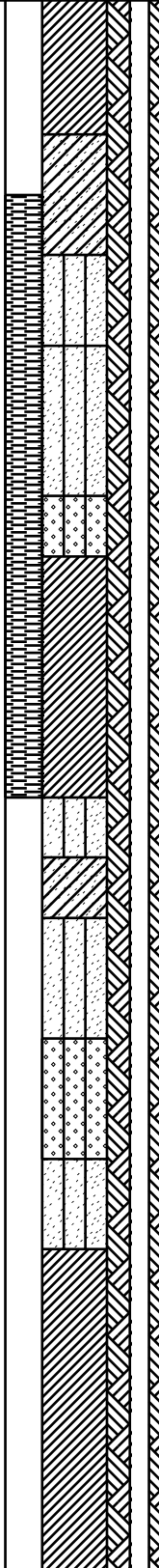
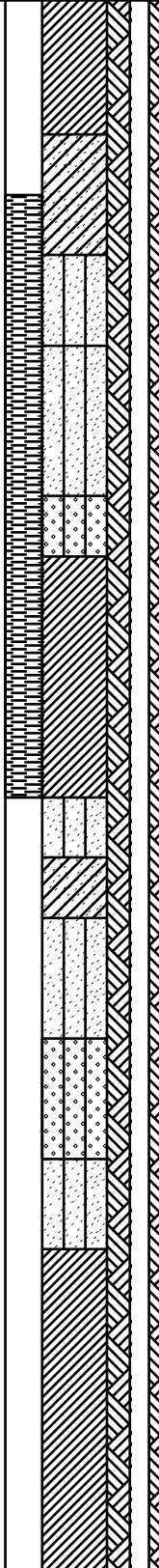
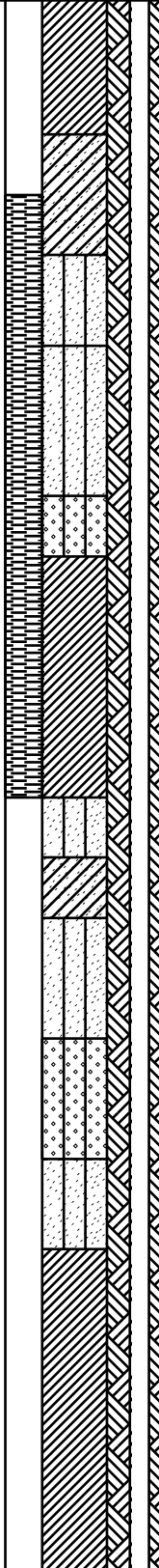
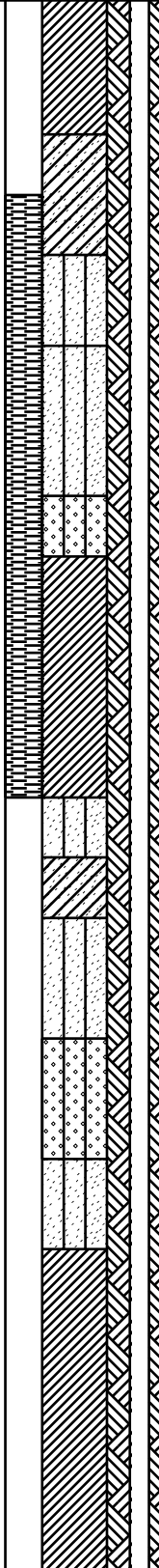
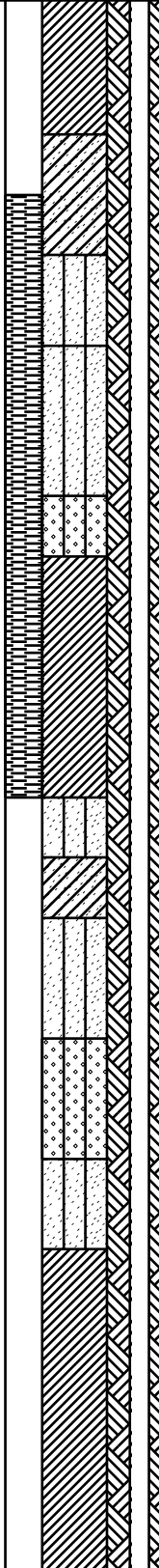
Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4285		medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
65		CL	<b>SANDY LEAN CLAY</b> (55-60 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~35% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are strong brown (7.5YR 4/6), and do not react to HCl.					
	4280	SC	<b>CLAYEY SAND</b> (66.5-69 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~6 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
70		SM	<b>SILTY SAND</b> (69-70 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (70-70.75 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~50% fine sand (<0.5 mm). The sand is subrounded. The fines have medium plasticity and					
		SC	low toughness, are dark grayish brown (10YR 4/2), and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (70.75-71.25 feet) Dry to moist, dense, no odor. Primarily fine sand (<0.5 mm) with ~40% silt and clay. The sand is subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
	4275	SC	<b>CLAYEY SAND</b> (70.75-71.25 feet) Dry to moist, dense, no odor. Primarily fine sand (<0.5 mm) with ~40% silt and clay. The sand is subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
75		SM	<b>SILTY SAND</b> (74-74.75 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (74.75-75.25 feet)					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-2**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **7** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
80	4270	CL	Dry to moist, no odor. Primarily fine sand (<0.5 mm) with ~40% silt and clay. The sand is subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl. <b>LEAN CLAY with SAND</b> (75.25-76.5 feet)	B/W-2 @ 77 - 82 Ft.				
		SC	Dry to moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. <b>CLAYEY SAND</b> (76.5-77.5 feet)					
		SM	Dry to moist, dense, no odor. Primarily medium to fine sand to 2 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (77.5-78.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>SILTY SAND</b> (77.5-78.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>WELL-GRADED SAND with SILT</b> (79.5-80 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 3mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (80-82 feet) Saturated, soft, no odor.					
		SM	Primarily silt and clay with ~40% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SC	<b>SILTY SAND</b> (82-82.5 feet) Saturated, medium dense, no odor.					
		SM	Primarily medium to fine sand with trace coarse sand to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
85	4265		<b>CLAYEY SAND</b> (82.5-83 feet) Moist, dense, no odor.	B/W-2 @ 77 - 82 Ft.				
		SW-SM	Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (83-84 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>WELL-GRADED SAND with SILT</b> (84-85 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% fine gravel to ~15 mm, and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SILTY SAND</b> (85-85.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 8 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4260			<b>LEAN CLAY with SAND</b> (85.75-95 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~25% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
90								
4255								
95		SW	<b>WELL-GRADED SAND</b> (95-99 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4250		SP-SM	<b>POORLY-GRADED SAND with SILT</b> (99-101.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
100		CL	<b>SANDY LEAN CLAY</b> (101.25-103.5 feet)					

B/W-2 @ 95 - 100 Ft.



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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			Dry to moist, hard, no odor. Primarily silt and clay with ~30% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	4245	SM	<b>SILTY SAND</b> (103.5-104 feet) Saturated, dense, no odor.					
		CL	Primarily medium to fine sand with to ~1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
105			<b>SANDY LEAN CLAY</b> (104-105 feet) Dry to moist, stiff, no odor.					
		SM	Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown (10YR 4/3), and do not react to HCl.					
		CL	<b>SILTY SAND</b> (105-105.75 feet) Moist to saturated, medium dense, no odor.					
			Primarily medium to fine sand with to ~1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SM	<b>LEAN CLAY with SAND</b> (105.75-106.5 feet) Moist, stiff, no odor.					
		CL	Primarily silt and clay with ~20% medium to fine sand to ~1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are olive brown (2.5Y 4/4), and do not react to HCl.					
	4240		<b>SILTY SAND</b> (106.5-107 feet) Dry to moist, medium dense, no odor.					
			Primarily medium to fine sand to ~1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
			<b>LEAN CLAY</b> (107-115.5 feet) Dry to moist, hard, no odor.					
110			Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and do not react to HCl.					
	4235							

Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 10 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115								
		SW	<b>WELL-GRADED SAND</b> (115.5-117 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm with ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (117-120 feet) Dry to moist, firm to hard, no odor. Primarily silt and clay with ~35% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	4230							
120		SM	<b>SILTY SAND</b> (120-121.75 feet) Dry to moist, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SP-SM	<b>POORLY -GRADED SAND with SILT</b> (121.75-123.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4225	CL	<b>SANDY LEAN CLAY</b> (123.25-125 feet) Dry to moist, stiff to hard, no odor. Primarily silt and clay with ~35% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
125		SM	<b>SILTY SAND</b> (125-129 feet) Dry to moist, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					

B/W-2 @ 115 - 120 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4220								
130		SW	<b>WELL-GRADED SAND</b> (129-134 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm with ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4215								
135		SW	<b>WELL-GRADED SAND</b> (134-136 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% fine gravel to ~8 mm with ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (136-138 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm with ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4210								
140		SW	<b>WELL-GRADED SAND</b> (138-140 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% fine gravel to ~8 mm with ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (140-142.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm with ~5% silt and clay. The sand is subangular to					

B/W-2 @ 135 - 140 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-2Soil Boring ☐Monitoring Well ☒

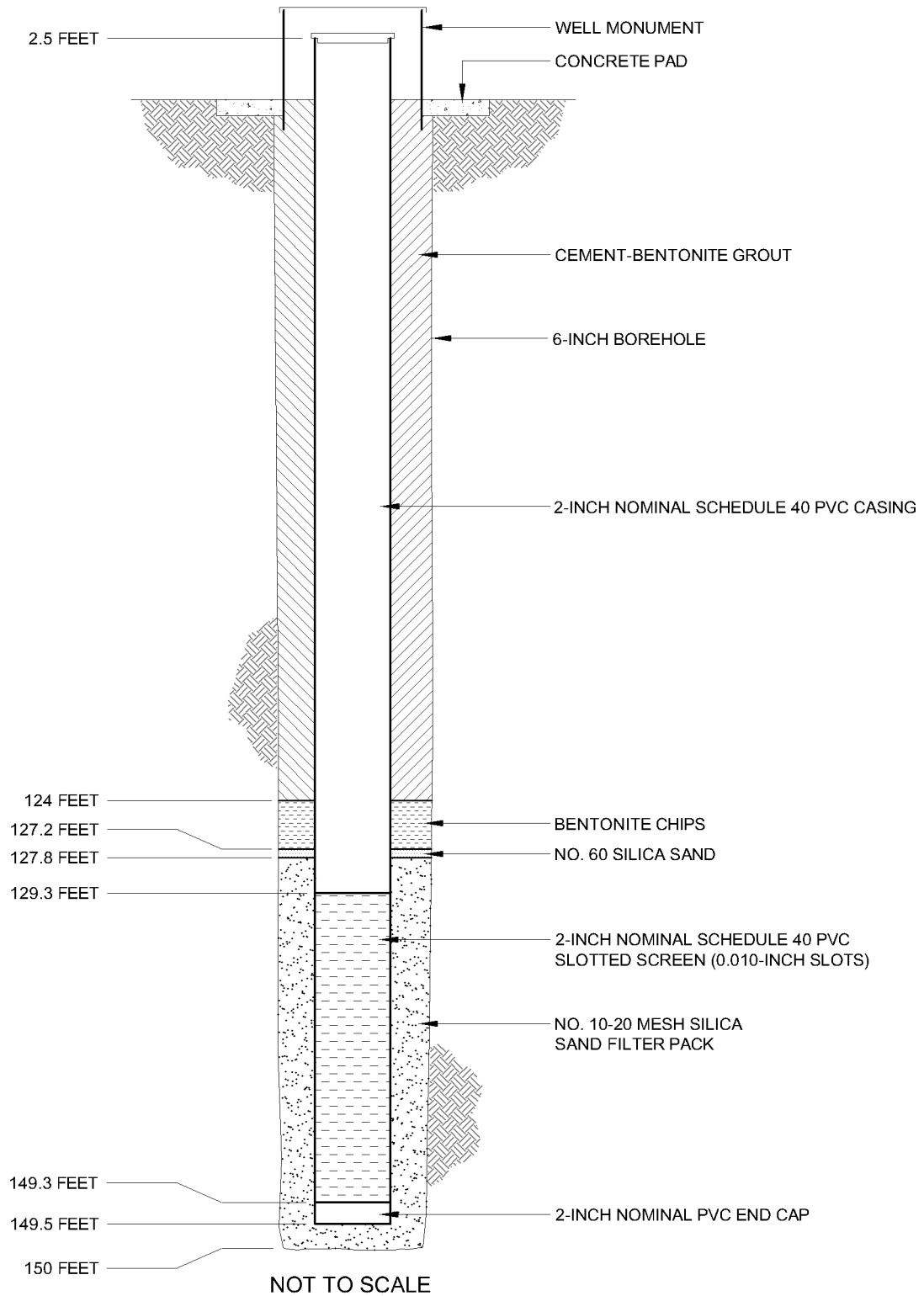
Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (142.5-144 feet) Dry to moist, dense, no odor. Primarily fine sand (<0.5 mm) with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown (10YR 5/3), and do not react to HCl.					
4205		SM	<b>SILTY SAND</b> (144-146 feet) Moist, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown to reddish brown, and do not react to HCl.					
145		SP-SM	<b>POORLY-GRADED SAND with SILT</b> (146-146.25 feet) Saturated, dense, no odor.					
		SC	Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP-SM	<b>CLAYEY SAND</b> (146.25-146.5 feet) Moist, dense, no odor.					
			Primarily fine sand (<0.5 mm) with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and medium to low toughness, are brown, and do not react to HCl.					
		SC	<b>POORLY-GRADED SAND with SILT</b> (146.5-147.75 feet) Saturated, dense, no odor.					
		SP-SM	Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4200		CL	<b>CLAYEY SAND</b> (147.75-148.5 feet) Moist, dense, no odor.					
			Primarily fine sand (<0.5 mm) with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and medium to low toughness, are brown, and do not react to HCl.					
150		CL	<b>POORLY-GRADED SAND with SILT</b> (148.5-148.75 feet) Saturated, dense, no odor.					
		CL	Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>LEAN CLAY with SAND</b> (148.75-149 feet) Dry to moist, hard, no odor.					
			Primarily silt and clay with ~25% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (149-149.75 feet) Dry to moist, hard, no odor.					
			Primarily silt and clay with ~45% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
		SP-SM	<b>SANDY LEAN CLAY</b> (149.75-150.5 feet) Dry to moist, hard, no odor.					
		SW-SM	Primarily silt and clay with ~35% fine sand (<0.5 mm). The					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155		SP-SM	sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. <b>SANDY LEAN CLAY</b> (150.5-152.75 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~45% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		CL	<b>POORLY-GRADED SAND with SILT</b> (152.75-153 feet) Saturated, dense, no odor. Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. <b>WELL-GRADED SAND with SILT</b> (153-155 feet) Saturated, dense, no odor. Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	<b>POORLY-GRADED SAND with SILT</b> (155-155.5 feet) Saturated, dense, no odor. Primarily medium to fine sand to ~1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. <b>SANDY LEAN CLAY</b> (155.5-157.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
4190			<b>CLAYEY SAND</b> (157.5-160 feet) Moist to saturated, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~5% fine gravel to ~8 mm, and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
160								



**BROWN AND  
CALDWELL**

Date: April 2006

Atlantic Richfield  
Company

Project: 129684

**Well B/W-3D  
Construction Details**

Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 12

Boring Location: <b>North of mine tailings, along Sunset Hills Dr.</b>		Elevation: <b>4351.2 feet amsl</b>	East: <b>322334.8</b> North: <b>1561218.8</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>B. Zamow</b>	Date Started: <b>8/27/05</b>	Date Finished: <b>8/31/05</b>
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>150.0</b>	Water Depth: (feet) <b>22' / 21.72'</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>129.3-149.3 ft., bottom at 149.5 ft.</b>	
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>	Filter Material: <b>#10-20 Silica Sand</b>
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4350	SM	<b>SILTY SAND</b> (0-1.5 feet) Dry, loose, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are grayish brown, and do not react to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
		CL	<b>SANDY LEAN CLAY</b> (1.5-2.5 feet) Dry, hard, no odor. Primarily silt and clay with ~30% medium to fine sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and have a strong reaction to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
		CL	<b>SANDY LEAN CLAY</b> (2.5-6.5 feet) Dry, hard, no odor. Primarily silt and clay with ~25% medium to fine sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and have a strong reaction to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
5								All depths are below land surface unless stated otherwise.
	4345	SM	<b>SILTY SAND</b> (6.5-8 feet) Dry, dense, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					WELL DESIGN for B/W-3D: Screened Interval: 129.3-149.3 feet. Bottom of sump: 149.5 feet.
		SM	<b>SILTY SAND</b> (8-9.5 feet) Dry, loose, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					Cement Grout: 0-124 feet. Bentonite Chips: 124-127.2 feet. Filter Pack: #60 Sand 127.2-127.8 feet, #10-20 Sand 127.8-150 feet.
		SC	<b>CLAYEY SAND</b> (9.5-10.75 feet) Dry, dense, no odor.					Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,353.70 feet, amsl. PVC Stick-up: 2.5 feet above land surface.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
15	4340	SM	Primarily medium to fine sand to ~1 mm with ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and have a strong reaction to HCl. <b>SILTY SAND</b> (10.75-12.25 feet) Dry, loose, no odor.					
		SM	Primarily medium to fine sand to ~2 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light grayish brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (12.25-14.5 feet) Dry, loose, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (8-9.5 feet) Dry to moist, loose, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~25% silt and clay. The sand is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4335	CL	<b>SANDY LEAN CLAY</b> (16-16.5 feet) Dry to moist, very stiff, no odor.					
		SM	Primarily silt and clay with ~35% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are olive brown (2.5Y 4/3), and do not react to HCl. <b>SILTY SAND</b> (16.5-20.25 feet) Dry to moist, loose, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~25% silt and clay. The sand is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
20		CL	<b>SANDY LEAN CLAY</b> (20.25-20.5 feet) Dry to moist, hard, no odor.					
	4330	SM	Primarily silt and clay with ~35% fine to medium sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl. <b>SILTY SAND</b> (20.5-22.75 feet) Dry to moist, medium dense, no odor.					
			Primarily sand to ~2 mm with ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (22.75-23.75 feet)					



Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 3 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25	4325	SC	Dry to moist, loose, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. <b>CLAYEY SAND</b> (23.75-25 feet)					
		SW-SM	Dry to moist, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines have low to medium plasticity and low toughness, are brown, and do not react to HCl. <b>WELL-GRADED SAND with SILT</b> (25-26 feet)					
		CL	Moist to saturated, loose, no odor. Primarily coarse to medium sand with ~30% fine sand, ~10% fine gravel to ~8 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl. <b>SANDY LEAN CLAY</b> (26-28.5 feet)					
			Dry to moist, hard, no odor. Primarily silt and clay with ~30% medium to fine sand, ~15% coarse sand, and ~5% gravel to ~18 mm. The sand and gravel are subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
30	4320	SM	<b>SILTY SAND</b> (28.5-29.5 feet) Moist, loose, no odor. Primarily medium to fine sand with ~20% coarse sand, ~5% gravel to ~10 mm, and ~25% silt and clay. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (29.5-35 feet) Moist to saturated, loose, no odor. Primarily medium to fine sand with ~5% fine gravel to ~8 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
35		SM	<b>SILTY SAND</b> (35-39.25 feet) Moist, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~30 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
40		SM	<b>SILTY SAND with GRAVEL</b> (39.25-39.75 feet) Saturated, loose, no odor.					
		SC	Primarily medium to fine sand with ~15% coarse sand, ~25% gravel to 25 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4310		SM	<b>CLAYEY SAND</b> (39.75-40 feet) Moist, medium dense, no odor.					
			Primarily medium to fine sand with ~15% coarse sand, trace fine gravel to ~10 mm, and ~40% silt and clay. The sand and gravel are subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (40-42 feet) Moist, loose, no odor.					
			Primarily medium to fine sand with ~20% coarse sand, ~5% fine gravel to ~10 mm, and ~20% silt and clay. The sand is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (42-43 feet) Moist, loose, no odor.					
			Primarily medium to fine sand with ~20% coarse sand, ~5% fine gravel to ~5 mm, and ~25% silt and clay. The sand is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
45		SM	<b>SILTY SAND</b> (44-51.75 feet) Moist, medium dense to dense, no odor.					
			Primarily medium to fine sand with ~10% gravel to ~40 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
4305								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 5 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50	4300			B/W-3 @ 49 - 54 Ft.				
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (51.75-52.5 feet) Moist to saturated, loose, no odor. Primarily medium to fine sand with ~25% coarse sand, ~10% gravel to ~30 mm, and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (52.5-55 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% gravel to 35 mm, and ~20% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, and do not react to HCl.					
55		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (55-55.5 feet) Saturated, loose, no odor.					
	4295	SW-SM	Primarily coarse to medium sand with ~30% gravel to ~40 mm and ~10% silt and clay. The sand and gravel are subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (55.5-57.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% gravel to ~30 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (57.5-59.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~10% gravel to ~20 mm, and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
60		SM	<b>SILTY SAND</b> (59.5-60.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~10% fine gravel to ~10 mm, and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4290	SW-SM	<b>WELL-GRADED SAND with SILT</b> (60.75-61 feet) Saturated, loose, no odor.					
		SM	Primarily coarse to medium sand with ~10% fine gravel to ~10 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (61-62 feet) Saturated, medium dense, no odor.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
65	4285		Primarily medium to fine sand with trace fine gravel to ~10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.	B/W-3 @ 62 - 67 Ft.				
		SM	<b>SILTY SAND</b> (62-64 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~20% coarse sand, ~10% gravel to ~20 mm, and ~15% silt and clay. The sand and gravel are subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (64-66 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% gravel to ~30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (66-66.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~5% fine gravel to ~10 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
70	4280	SM	<b>SILTY SAND</b> (66.5-72 feet) Saturated, medium dense, no odor. Primarily sand to ~2 mm with ~45% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (72-75 feet) Moist to saturated, medium dense, no odor. Primarily sand with ~10% fine gravel to ~10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (75-76 feet) Dry to moist, hard, no odor.					
75								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 7 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4275	SM	Primarily silt and clay with ~45% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl. <b>SILTY SAND</b> (76-78 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~10% fine gravel to ~10 mm, and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.	B/W-3 @ 75 - 80 Ft.				
		SM	<b>SILTY SAND</b> (78-79.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% fine gravel to ~5 mm, and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
80		CL	<b>SANDY LEAN CLAY</b> (79.5-80 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% coarse sand to ~4 mm. The sand is subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.					
	4270	CL	<b>SANDY LEAN CLAY</b> (80-87 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~50% sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown (10YR 5/3), and have a weak reaction to HCl.					
85								
	4265							
		SM	<b>SILTY SAND</b> (87-87.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~10% gravel to ~20 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (87.5-88.5 feet) Moist, hard, no odor.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 8 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
90	4260	ML	Primarily silt and clay with ~30% medium to fine sand and ~5% fine gravel to ~10 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl. <b>SANDY SILT</b> (88.5-93 feet) Moist to saturated, hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace coarse sand to ~4 mm. The sand is angular to subangular. The fines have low plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
95	4255	SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (93-96.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% gravel to ~50 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (96.5-98.5 feet) Moist, medium dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~5% gravel to ~30 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
100		CL	<b>LEAN CLAY</b> (98.5-100 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4) and have a strong reaction to HCl.					
	4250	SM	<b>SILTY SAND</b> (100-106 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					

B/W-3 @ 93 - 98 Ft.

# BORING LOG

Well Number: B/W-3

### Monitoring Well

**121243.021**

Sheet 9 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
105								
4245		CL	<b>LEAN CLAY</b> (106-107 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
		CL	<b>LEAN CLAY</b> (107-110 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
110		SW	<b>WELL-GRADED SAND</b> (110-115 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
4240								
				B/W-3 @ 110 - 115 Ft.				

SONIC METHOD LOG YERINGTON.GPJ BRN&amp;CALD.GDT 1/31/06

Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 10 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115	4235	SW	<b>POORLY-GRADED SAND</b> (115-116.75 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~5 mm and ~5% silt and clay. The sand is angular to subangular. The fines have low plasticity and toughness, and are brown.					
		SC	<b>CLAYEY SAND</b> (116-75-118.5 feet) Moist, dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (118.5-120 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity, are brown, and do not react to HCl. Interval interbedded with some fine-grained lenses, ~1 to 2.5 cm thick.					
120	4230	SC	<b>CLAYEY SAND</b> (120-123.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
125	4225	CH	<b>FAT CLAY</b> (123.5-129.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have high plasticity and toughness, are bluish black (GLEYS 2.5/), and do not react to HCl.					



Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 11 of 12

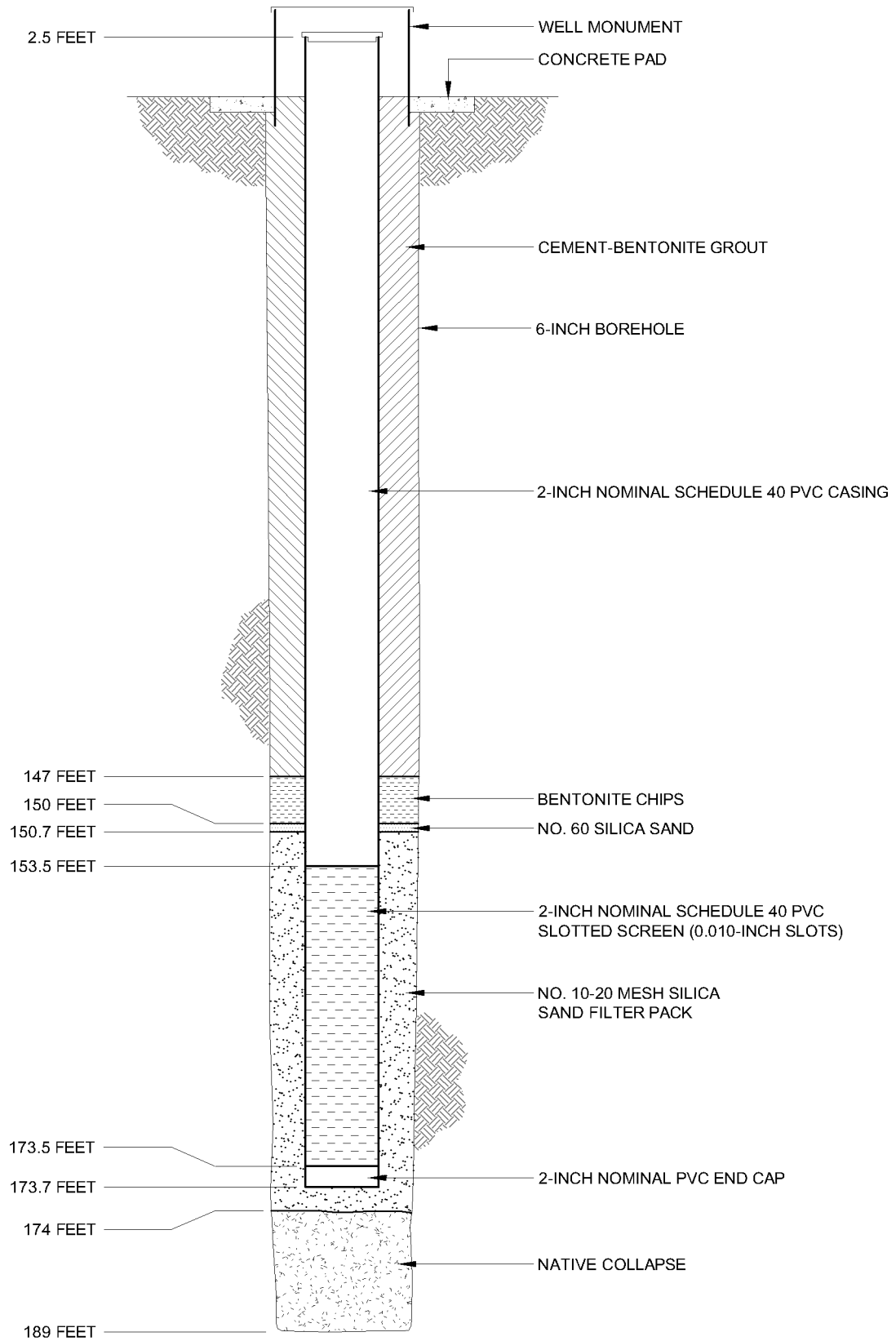
Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
130	4220	SM	<b>SILTY SAND</b> (129.5-130 feet) Moist, medium dense, no odor. Primarily medium to fine to ~1 mm sand with ~30% silt and clay. The sand is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (130-132 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~20% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (132-133 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, are brown, and do not react to HCl.					
		SP-SM	<b>POORLY-GRADED SAND with SILT</b> (133-135 feet) Moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
135	4215	SC	<b>CLAYEY SAND</b> (135-138.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular. The fines have medium plasticity and toughness, are reddish brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (138.5-140 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand to ~1 mm with ~15% silt and clay. The sand is subangular. The fines are nonplastic, are reddish brown, and do not react to HCl.					
140		CL	<b>SANDY LEAN CLAY</b> (140-141.5 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~40% fine sand (<1/2 mm). The sand is subangular. The fines have medium plasticity and					

B/W-3 @ 130 - 135 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-3Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 12 of 12

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4210		toughness, are brown, and do not react to HCl. Some reddish brown iron oxide streaks.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (141-142 feet) Saturated, medium dense, no odor.					
		CL	Primarily medium to fine sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>SANDY LEAN CLAY</b> (142-142.5 feet) Dry to moist, firm, no odor.					
		SP	Primarily silt and clay with ~40% medium to fine sand. The sand is subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl. Some reddish brown iron oxide streaks.					
			<b>WELL-GRADED SAND with SILT</b> (142.5-143.5 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>POORLY-GRADED SAND</b> (143.5-148 feet) Saturated, medium dense, no odor.					
			Primarily medium to fine sand with ~5% fine gravel to ~8 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4205							
		CH	<b>FAT CLAY</b> (148-150 feet) Dry to moist, hard, no odor.					
			Primarily silt and clay with ~20% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium to high plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	150							

B/W-3 @ 143 - 148 Ft.



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: April 2006

Atlantic Richfield  
Company

Project: 129684

**Well B/W-4D  
Construction Details**

Project Name: Yerington Groundwater InvestigationWell Number: B/W-4Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 15Boring Location: North of mine tailings, in Sunset Hills residential areaElevation: 4381.5 feet amslEast: 322902.3  
North: 1563779.6Drilling Contractor: WDCDriller: B. ZamowDate Started: 8/21/05Date Finished: 8/26/05Drilling Equipment: Gus Pech GP24-400RS, Diedrich Sonic HeadTotal  
Depth: (feet) 189.0Water Depth:  
(feet) 57.5' / 54.00'Sampling Method: Core BarrelBorehole Diameter: 6"Well Diameter  
and Material: 2-inch PVCDrilling Method: Sonic, utilized 6" casing and a 4.5" core barrelScreened Interval  
and Well Depth: 153.5-173.5 ft., bottom at 173.7 ft.Well Seal: Bentontite and CementSlot Size: 0.020"Filter Material: #10-20 Silica SandLogged By: C. GardnerDevelopment Method: Swabbed, bailed, pumped

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4380		SM	<u>SILTY SAND</u> (0-6 feet) Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to ~30 mm, ~5% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
5								Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
								Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
								All depths are below land surface unless stated otherwise.
								WELL DESIGN for B/W-4D: Screened Interval: 153.5-173.5 feet. Bottom of sump: 173.7 feet.
4375		SM	<u>SILTY SAND with GRAVEL</u> (6-11 feet) Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm, and ~15% silt and clay. The sand is angular to subangular and the gravel is angular. The fines are nonplastic, brown, and do not react to HCl.					Cement Grout: 0-147 feet. Bentonite Chips: 147-150 feet. Filter Pack: #60 Sand 150-150.7 feet, #10-20 Sand 150.7-174 feet. Native Collapse: 174-189 feet
								Depth to Water Measuring Point is Top of PVC Casing.
								Top of PVC Elevation: 4,383.96 feet, amsl. PVC Stick-up: 2.5 feet above land surface.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-4Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
15	4370	SM	<b>SILTY SAND with GRAVEL</b> (11-16 feet) Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to ~45 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, light brown, and do not react to HCl.					
	4365	SM	<b>SILTY SAND with GRAVEL</b> (16-17 feet) Dry, loose, no odor. Primarily medium to fine sand with ~25% gravel to ~55 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, grayish brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (17-18.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~15 mm, ~5% coarse sand, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SC	<b>SILTY SAND</b> (18.5-20 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have weak to no reaction to HCl.					
20		SC	<b>CLAYEY SAND with GRAVEL</b> (20-21 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~20 mm, ~5% coarse sand, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, light brown, and have a strong reaction to HCl.					
	4360	SC	<b>CLAYEY SAND with GRAVEL</b> (21-22.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~15 mm, and ~25% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (22.75-23.25 feet)					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-4**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **3** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25	4355	SC	Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SM	<b>CLAYEY SAND</b> (23.25-24 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~15 mm, trace coarse sand, and ~30% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown, and have no to a strong reaction to HCl.					
		SC	<b>SILTY SAND with GRAVEL</b> (24-25 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~15 mm, ~5% coarse sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl.					
			<b>CLAYEY SAND</b> (25-29.25 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm, ~5% coarse sand, and ~40% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (29.25-30 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~5% coarse sand, and ~25% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have no to a weak reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (30-31 feet) Dry, dense, no odor.					
30	4350	SM	Primarily medium to fine sand with ~5% gravel to ~25 mm, ~5% coarse sand, and ~40% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown (10 YR 5/3), and have a weak reaction to HCl.					
			<b>SILTY SAND with GRAVEL</b> (31-36.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~20 mm, ~15% coarse sand, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl.					
35								

Project Name: Yerington Groundwater InvestigationWell Number: B/W-4Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4345		SM	<b>SILTY SAND</b> (36.5-40 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a weak reaction to HCl.					
40		SM	<b>SILTY SAND with GRAVEL</b> (40-41.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~20 mm, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl.					
4340		SM	<b>SILTY SAND</b> (41.5-44 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~15 mm, ~5% coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
45		CL	<b>SANDY LEAN CLAY</b> (44-44.5 feet) Dry, dense, no odor.					
		SM	Primarily silt and clay with ~5% gravel to ~15 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand is subangular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and medium toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
		SC	<b>SILTY SAND</b> (44.5-45 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~15 mm, ~5% coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
4335			<b>CLAYEY SAND</b> (45-47.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm, ~5% coarse sand, and ~30% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have medium plasticity and medium toughness, are brown, and have a strong to weak reaction to HCl.					
		SW-SM	<b>WELL GRADED SAND with SILT</b> (47.5-49.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~40 mm, ~5% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50		SW-SM	<b>WELL GRADED SAND with SILT AND GRAVEL</b> (49.5-50.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~30 mm, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4330	SW	<b>WELL GRADED SAND with SILT and GRAVEL</b> (50.5-53.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~45 mm, ~15% coarse sand, and ~5% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW-SM	<b>WELL GRADED SAND with SILT</b> (53.5-55 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~15% coarse sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
55		SM	<b>SILTY SAND</b> (55-57.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~30 mm, and ~15% silt and clay. The sand is subangular to subrounded and the gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4325							
		SW-SM	<b>WELL GRADED SAND with SILT</b> (57.5-58.5 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand with ~5% gravel to ~20 mm, ~10% fine sand, and ~5% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW-SM	<b>WELL GRADED SAND with SILT AND GRAVEL</b> (58.5-60 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~50 mm, ~15% coarse sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
60		SW-SM	<b>WELL GRADED SAND with SILT</b> (60-62.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~15 mm, and ~10% silt and clay. The sand is angular to subrounded and the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4320							



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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
65	4315	SW-SM	<b>WELL GRADED SAND with SILT AND GRAVEL</b> (62.5-63.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~50 mm, ~15% coarse sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.	B/W-4 @ 62 - 67 Ft.				
		GW-GM	<b>WELL GRADED GRAVEL with SILT AND SAND</b> (63.5-64.5 feet) Saturated, medium dense, no odor. Primarily gravel to ~60 mm, ~35% medium to fine sand, ~15% coarse sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no to a weak reaction to HCl.					
		SW-SM	<b>WELL GRADED SAND with SILT</b> (64.5-66.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (66.5-67 feet) Moist, stiff, no odor. Primarily silt and clay with ~5% gravel to ~50 mm, ~40% medium to fine sand, and ~5% coarse sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish-brown (10YR 5/4), and have no reaction to HCl.					
70	4310	SW-SM	<b>WELL GRADED SAND with SILT AND GRAVEL</b> (67-69.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~40 mm, ~15% fine sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (69.5-70.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~35 mm, and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SW-SM	<b>WELL GRADED SAND with SILT AND GRAVEL</b> (70.5-91.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~50 mm, ~15% fine sand, and ~10% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
75								

Project Name: Yerington Groundwater Investigation

Well Number: B/W-4

Soil Boring ☐

Monitoring Well ☒

Project Number: 121243.021

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4305								
80								
4300								
85								
4295								

B/W-4 @ 78 - 83 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
90								
4290								
		CL	<b>SANDY LEAN CLAY</b> (91.5-93 feet) Dry to moist, dense, no odor. Primarily silt and clay with ~10% gravel to ~25 mm, ~15% coarse sand, and ~35% medium to fine sand. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (93-96 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm, ~5% coarse sand, and ~30% silt and clay. The sand is angular to subrounded and the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
95								
4285		CL	<b>SANDY LEAN CLAY</b> (96-97 feet) Dry to moist, dense, no odor. Primarily silt and clay with ~5% gravel to ~20 mm, ~5% coarse sand, and ~25% medium to fine sand. The sand is angular to subrounded and the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have no to a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (97-100 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~15 mm, and ~40% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
100								
4280		SM	<b>SILTY SAND</b> (100-101.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					

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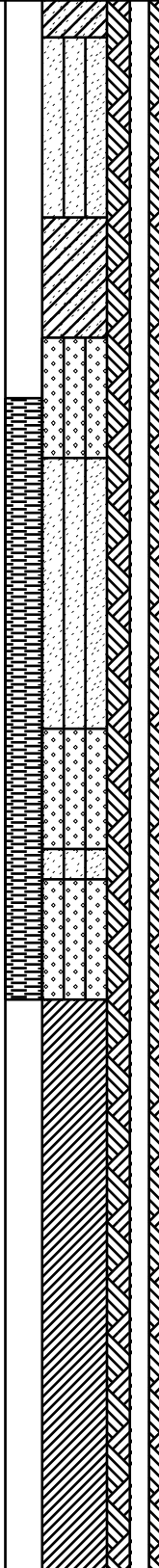
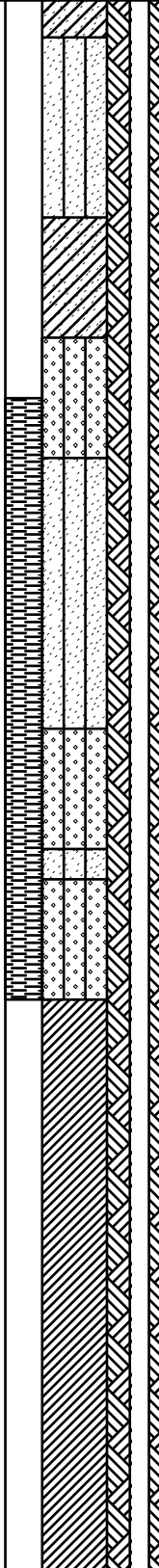
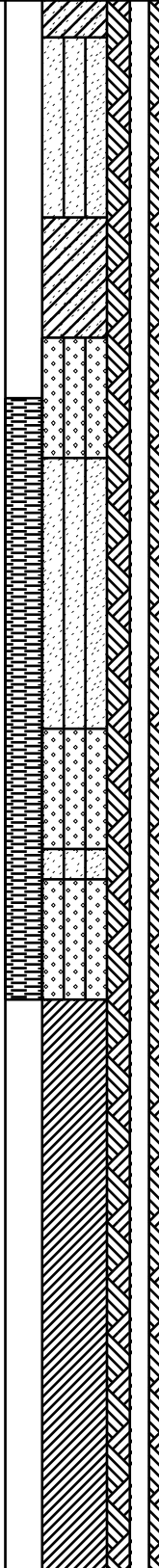
Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
105	4275	SM	<b>SILTY SAND</b> (101.5-103 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.	B/W-4 @ 100 - 105 Ft.				
		SM	<b>SILTY SAND</b> (103-104.25 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm, ~15% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (104.25-105.25 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~55 mm, ~5% coarse sand, and ~25% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no to a weak reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (105.25-109 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~55 mm, ~20% coarse sand, and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (109-112.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~15 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no to a weak reaction to HCl.					
		SM	<b>SILTY SAND</b> (112.5-113.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm, ~25% coarse sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
	4270	SM	<b>SILTY SAND</b> (113.5-115.5 feet) Moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~15 mm, ~5% coarse sand, and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115			and toughness, are brown, and have a strong to weak reaction to HCl.					
	4265	SM	<b>SILTY SAND with GRAVEL</b> (115.5-116.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm, ~15% coarse sand, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW	<b>WELL GRADED SAND</b> (116.5-118 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~35 mm, ~20% coarse sand, and ~5% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (118-119.5 feet) Moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
120		SM	<b>SILTY SAND</b> (119.5-120 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm, ~5% coarse sand, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4260	SM	<b>SILTY SAND</b> (120-123 feet) Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm, ~5% coarse sand, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (123-127.5 feet) Moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~35 mm, ~5% coarse sand, and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
125								
	4255							
		SC	<b>CLAYEY SAND</b> (127.5-128 feet)					

B/W-4 @ 115 - 120 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
130	4250	SM	Moist, very dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm, trace amounts of coarse sand, and ~30% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl.	B/W-4 @ 131 - 136 Ft.				
			<u>SILTY SAND</u> (128-129.5 feet)					
		SC	Saturated, dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm, trace amounts of coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
			<u>CLAYEY SAND</u> (129.5-130.5 feet)					
		SW-SM	Moist to saturated, dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm, trace amounts of coarse sand, and ~30% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
			<u>WELL GRADED SAND with GRAVEL</u> (130.5-131.5 feet)					
		SM	Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~20 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
			<u>SILTY SAND</u> (131.5-133.75 feet)					
		SW-SM	Moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm, trace amounts of coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
			<u>WELL GRADED SAND with SILT AND GRAVEL</u> (133.75-134.75 feet)					
135	4245	SM	Saturated, medium dense, no odor. Primarily coarse to medium sand with ~30% gravel to ~30 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW-SM	<u>SILTY SAND</u> (134.75-135 feet)					
			Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~15 mm, ~5% coarse sand, and ~20% silt and clay. The sand is subangular to subrounded and the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		CL	<u>WELL GRADED SAND with SILT AND GRAVEL</u> (135-136 feet)					
140			Saturated, medium dense, no odor. Primarily coarse to medium sand with ~30% gravel to ~30 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
			<u>SANDY LEAN CLAY with GRAVEL</u> (136-139 feet)					
			Moist, moist to dry in lower portion of interval, hard, no odor. Primarily silt and clay with ~15% gravel to ~20 mm, coarse sand, and ~35% coarse to fine sand. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have no reaction to HCl.					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4240		SP-SM	<b>POORLY GRADED SAND with SILT</b> (141.5-142.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm, trace amounts of coarse sand, and ~10% silt and clay. The sand is subangular to rounded and the gravel is subangular to subrounded. The fines are non-plastic, are brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (142.5-143.5 feet) Moist, dense, no odor. Primarily coarse, medium, and fine sand with ~20% gravel to ~50 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are non-plastic, are brown, and have no reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (143.5-146 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~5% gravel to ~25 mm, ~5% coarse sand, and ~40% medium and fine sand. The sand is subangular to subrounded and the gravel is angular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have no reaction to HCl.					
145		SC	<b>CLAYEY SAND</b> (146-147 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~8 mm, and ~25% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity, low to medium toughness, are brown, and have no reaction to HCl.					
4235		SM	<b>SILTY SAND with GRAVEL</b> (147-148.5 feet) Saturated, medium dense, no odor. Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (148.5-149.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~40 mm, ~25% coarse sand, and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (149.75-150.5 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~10 mm, and ~15% silt and clay. The sand is subangular and the gravel is subrounded to subangular. The fines are no to low plasticity, no to low toughness, are brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (150.5-151.75 feet) Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm, ~15% coarse sand, and ~20% silt and clay. The sand is subangular to angular and the gravel is subrounded to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
150		SM	<b>SILTY SAND with GRAVEL</b> (151.75-152.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~20 mm, ~30% coarse sand, and ~15% silt and clay. The sand and gravel is subangular to angular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
4230		SC	<b>CLAYEY SAND with GRAVEL</b> (152.5-155 feet) Moist, dense, no odor.					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-4**Soil Boring ☐Monitoring Well ☒

Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155			Primarily medium to fine sand with ~20% gravel to ~20 mm, ~25% coarse sand, and ~30% silt and clay. The sand and gravel is subangular to angular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SW-SM	<b>WELL GRADED SAND with SILT</b> (155-156 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~5% gravel to ~30 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4225	SW-SM	<b>WELL GRADED SAND with SILT AND GRAVEL</b> (156-157.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~40% gravel to ~30 mm, ~10% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND with GRAVEL</b> (157.5-163 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~30% gravel to ~25 mm, ~5% coarse sand, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
160								
	4220							
		SW-SM	<b>WELL GRADED SAND with SILT AND GRAVEL</b> (163-164.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~40% gravel to ~50 mm, ~10% fine sand, and ~10% silt and clay. The sand is subangular to subrounded and the gravel is subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (165.5-166 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~35% gravel to ~30 mm, ~15% fine sand, and ~15% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
165								
	4215	SC	<b>CLAYEY SAND</b> (166-166.5 feet) Moist, dense, no odor.					
		SM	Primarily medium to fine sand with trace gravel to ~8 mm, and ~35% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness.					

B/W-4 @ 154 - 159 Ft.



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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
170	4210		light brown, and have no reaction to HCl.					
		SC	<b>SILTY SAND with GRAVEL</b> (166.5-167.5 feet) Moist, dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~30 mm, ~15% fine sand, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, light brown, and have no reaction to HCl.					
		NR	<b>CLAYEY SAND</b> (167.5-168 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm, and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, light brown, and have no to a strong reaction to HCl.					
		SW	<b>No Recovery</b> (168-169 feet) <b>WELL GRADED SAND with GRAVEL</b> (169-171.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~45% gravel to ~40 mm, ~10% fine sand, and ~5% silt and clay. The sand is angular to subangular and the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
175	4205	CL	<b>SANDY LEAN CLAY</b> (171.5-172 feet) Moist, firm, no odor. Primarily silt and clay with trace coarse sand to ~4.5 mm, and ~30% medium to fine sand. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish-brown (2.5Y 4/2), and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (172-175 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
		SW-SM	<b>WELL GRADED SAND with SILT</b> (175-176 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~10 mm, ~20% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>WELL GRADED SAND with SILT</b> (175-176 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~10 mm, ~20% fine sand, and ~10% silt and clay. The sand and gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (178.5-186 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~45 mm, and ~30% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					

B/W-4 @ 168 - 173 Ft.

# BORING LOG

Well Number: **B/W-4**

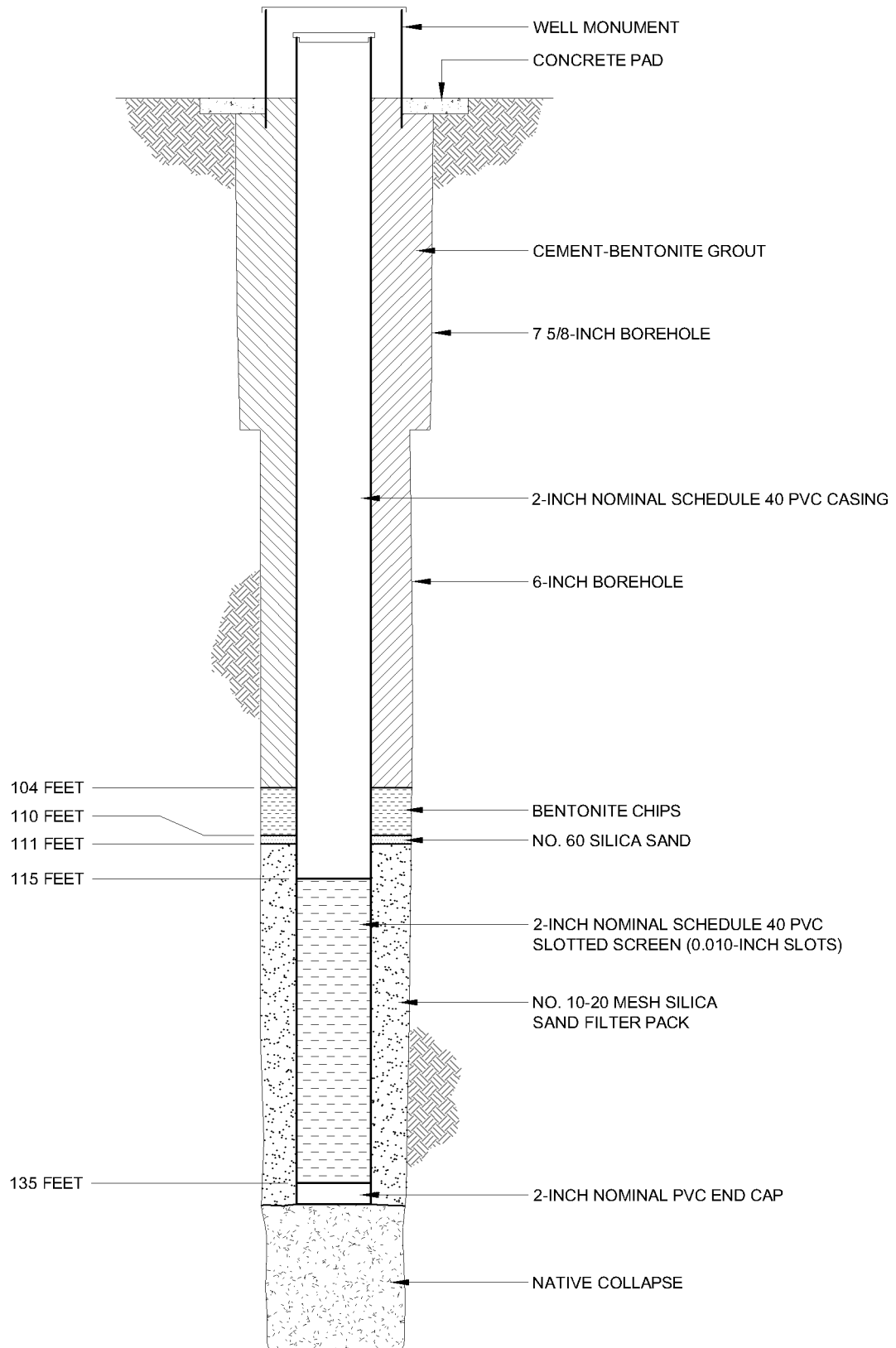
Monitoring Well

Project Number:

**121243.021**

Sheet 15 of 15

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4200								
185								
4195		SM	<b>SILTY SAND with GRAVEL</b> (187-189 feet) Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~25 mm, and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-5RD  
Construction Details**

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-5D

Sheet 1 of 8

<b>Boring Location:</b> Located 1/2 mile North on west side of Mason Pass Rd.		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 11/12/07	<b>Date Finished:</b> 11/13/07
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 135 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> C. Strauss		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 40 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SM	<b>Silty Sand (0 - 5.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
		SM	<b>Silty Sand (5.5 - 9)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
								Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
								All depths are below land surface unless stated otherwise.
10		SP-SM	<b>Poorly Graded Sand with Silt (9 - 17.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% coarse sand to 3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic.					WELL DESIGN for B/W-5D: PVC Stickup: feet. Cement - Bentonite Grout: 0 - 104 feet Bentonite Chips: 104 - 110 feet No. 60 Silica Sand: 110 - 111 feet #10-20 Silica Sand Filter Pack: 111 - 135 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 115 - 135 feet Native Collapse: NA feet Additional Bentonite Fill: NA feet
								Number of wells at this location: 3 Screen intervals for paired wells are labeled at the installed depths.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-5D

Sheet 2 of 8

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
20		SM	<b>Silty Sand (17.5 - 18)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~ 15% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic					
		SM	<b>Silty Sand (18 - 22)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
25		SW	<b>Well-Graded Sand (22 - 26)</b> Dry to moist, loose, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
30		SC	<b>Clayey Sand (26 - 31)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness.					
		SC	<b>Clayey Sand (31 - 36)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% coarse grained sand to 1 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness.					

← B/W-5S screened from 30 to 50 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-5D

Sheet 3 of 8

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35								
		SM	<b>Silty Sand (36 - 37.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 2 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness.					
		SP-SM	<b>Poorly Graded Sand with Silt (37.5 - 38.5)</b> Moist to saturated, loose to dense, no odor. Primarily medium to fine sand with ~15% coarse sand to 3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic.					
40		SM	<b>Silty Sand (38.5 - 42)</b> Moist to saturated, dense, no odor. Primarily fine sand with ~5% coarse sand to 2 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness.					
		SP-SM	<b>Poorly Graded Sand with Silt (42 - 43)</b> Saturated, loose, no odor. Primarily medium sand with ~15% coarse sand to 4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic.					
		SP-SM	<b>Poorly Graded Sand with Silt (43 - 44)</b> Moist, dense, no odor. Primarily fine sand with ~10% medium sand to 0.5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines have low to medium plasticity and toughness.					
45		SM	<b>Silty Sand (44 - 51.5)</b> Moist to saturated, loose to dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
50								
		SM	<b>Silty Sand (51.5 - 53)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% coarse sand to 2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-5D

Sheet 4 of 8

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55		SC	<b>Clayey Sand (53 - 56)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic.					
			<b>(56 - 60)</b> No recovery					
60		SC	<b>Clayey Sand (60 - 63.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic.					
		SM	<b>Silty Sand (63.5 - 66)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic.					
65		SM	<b>Silty Sand (66 - 68.5)</b> Dry to moist, dense, no odor. Primarily fine sand with ~15% medium sand to 0.5 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have low to medium plasticity and toughness.					
		SW-SM	<b>Well-Graded Sand with Silt (68.5 - 71)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
70		SC	<b>Clayey Sand with Gravel (71 - 76)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and					

# BORING LOG

Project Name: Yerlington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-5D

Sheet 5 of 8

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75			clay. The sand and gravel are angular to subrounded. The fines have low to medium plasticity and toughness.					
		SM	<b>Silty Sand (76 - 81)</b> Dry to moist, dense, no odor. Primarily fine sand with ~30% medium sand to 0.1 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness.					
80		SM	<b>Silty Sand with Gravel (81 - 88)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~ 25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic.					
85								
		SP	<b>Poorly Graded Sand with Silt (88 - 89)</b> Saturated, loose, no odor. Primarily medium to fine sand with ~10% coarse sand to 1 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic.					
90		SM	<b>Silty Sand with Gravel (89 - 91.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~ 25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic. Section has iron					

← B/W-5I screened from 77.5 to 97.5 feet



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-5D

Sheet 6 of 8

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			staining visible in bands.					
		SM	<b>Silty Sand (91.5 - 93)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
		SM	<b>Silty Sand (93 - 95)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
95		SC	<b>Clayey Sand (95 - 99)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 2mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
		SM	<b>Silty Sand (99 - 101.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
100		SM	<b>Silty Sand (101.5 - 103)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.					
		SM	<b>Silty Sand (103 - 107.5)</b> Dry, dense, no odor. Primarily medium to fine sand with a maximum grain size 0.5 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness.					
105								
		SP	<b>Poorly Graded Sand with Silt (107.5 - 109)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm, ~15% coarse grain sand and ~ 15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic.					
		SC						
		SC	<b>Clayey Sand with Gravel (109 - 109.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 25 mm and ~30% silt and					
110								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-5D

Sheet 7 of 8

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115		SM	<p>clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness.</p> <p><b>Clayey Sand (109.5 - 112)</b> Moist, very dense, no odor. Primarily medium to fine sand with maximum grain size 0.5 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have low to medium plasticity and toughness.</p> <p><b>Silty Sand (112 - 116)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~ 25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness. There are more sandy intervals from 112-112.5 feet and 113.5-114 feet.</p>					
		SW-SM	<p><b>Well-Graded Sand with Silt (116 - 117)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~ 15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.</p>					
		SP	<p><b>Poorly Graded Sand (117 - 126.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 100 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic. There is a thin clayey layer ~124 feet.</p>					
120								
		SM	<p><b>Silty Sand (126.5 - 128)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with maximum grain size 1mm and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic.</p>					
125		SM	<p><b>Silty Sand (128 - 135)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular.</p>					

B/W-5D screened from 115 to 135 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

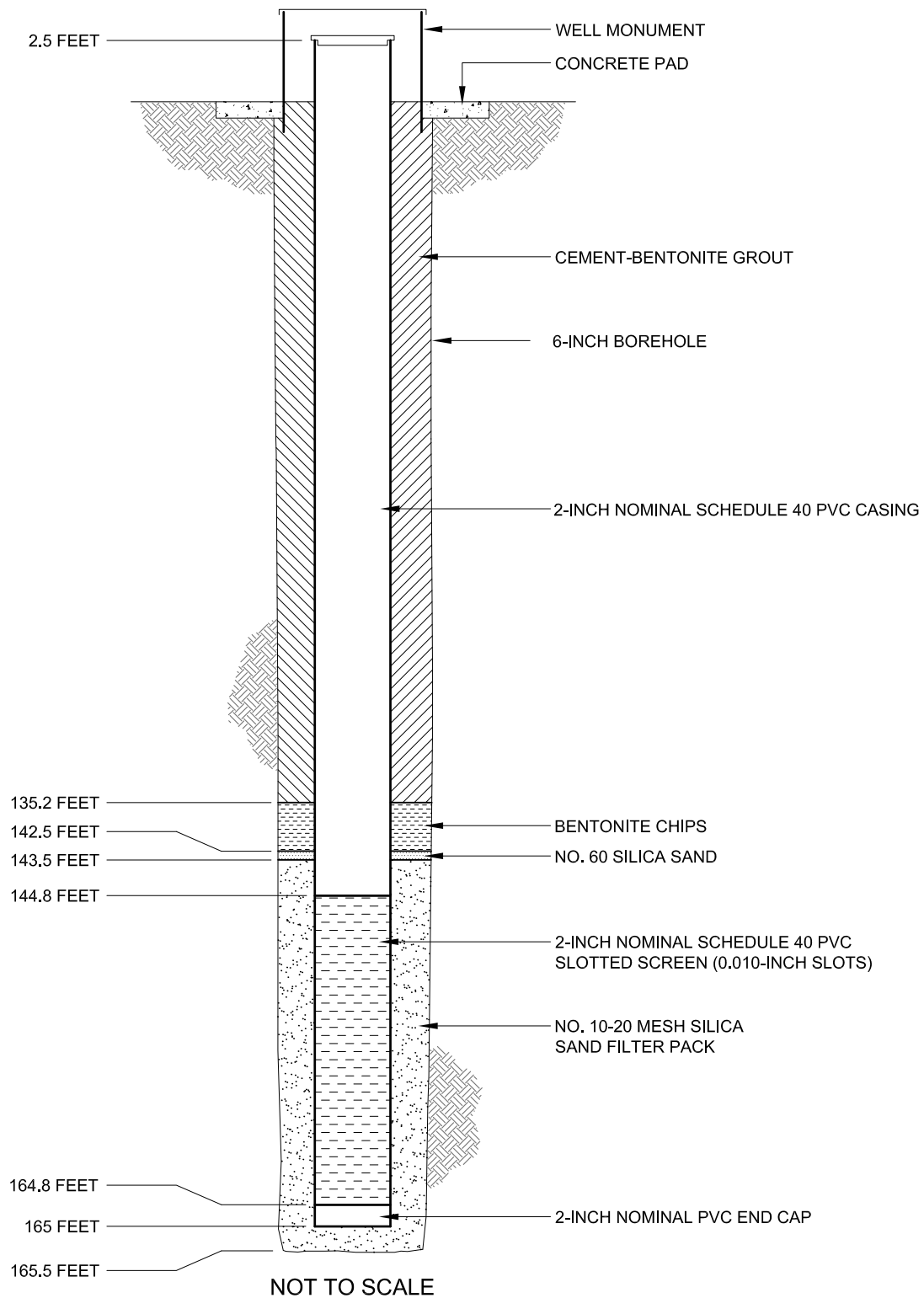
Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-5D

Sheet 8 of 8

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130			The fines are nonplastic.					
135			Bottom of Borehole at 135 feet below ground surface.					



DATE:  
April 2006

PROJECT NUMBER:  
129684

**BROWN AND  
CALDWELL**  
Carson City, Nevada

Atlantic Richfield  
Company

**Figure 2-13**

**Well B/W-9D Construction Details**

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒

Project Number:

121243.021Sheet 1 of 13

Boring Location: <b>North of mine tailings, east of Sunset Hills Drive</b>		Elevation: <b>4351.3 feet amsl</b>	East: <b>323810.1</b> North: <b>1558835.3</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>B. Zamow</b>	Date Started: <b>9/11/05</b>	Date Finished: <b>9/14/05</b>
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>165.5</b>	Water Depth: (feet) <b>22.5' / 17.11'</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>144.8-164.8 ft., bottom at 165.0 ft.</b>	
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>	Filter Material: <b>#10-20 Silica Sand</b>
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4350		SC	<b>CLAYEY SAND</b> (0-1.5 feet) Dry, loose, no odor. Predominately medium to fine sand with trace coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and have a weak reaction to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
5		SC	<b>CLAYEY SAND</b> (1.5-8 feet) Dry to moist, medium dense, no odor. Predominately medium to fine sand with trace coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and have a weak reaction to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.  WELL DESIGN for B/W-9D: Screened Interval: 144.8-164.8 feet. Bottom of sump: 165 feet.  Cement Grout: 0-132.2 feet. Bentonite Chips: 132.2-142.5 feet. Filter Pack: #60 Sand 142.5-143.5 feet, #10-20 Sand 143.5-165.5 feet.
4345		CL	<b>SANDY LEAN CLAY</b> (8-9.5 feet) Dry to moist, stiff, no odor. Predominately silt and clay with ~40% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5-2), and have a strong reaction to HCl.					Depth to Water Measuring Point is Top of PVC Casing.  Top of PVC Elevation: 4,353.84 feet, amsl. PVC Stick-up: 2.5 feet above land surface.
		SM	<b>SANDY LEAN CLAY</b> (10.5-12 feet) Dry to moist, stiff, no odor.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4340		CL	Predominately silt and clay with ~30% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and have a weak to strong reaction to HCl. <b>SANDY LEAN CLAY</b> (10.5-12 feet) Dry to moist, stiff, no odor.					
		SM	Predominately silt and clay with ~30% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and have a weak to strong reaction to HCl.					
		SC	<b>SILTY SAND</b> (12-14 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~5% coarse sand to 4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
15		SM	<b>CLAYEY SAND</b> (14-15 feet) Dry to moist, medium dense, no odor. Predominately fine sand (<0.5 mm) with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		CL	<b>SILTY SAND</b> (15-15.5 feet) Moist, medium dense, no odor.					
		SM	Predominately medium to fine sand with trace fine gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic and are light brown.					
		CL	<b>SANDY LEAN CLAY</b> (15.5-15.75 feet) Dry to moist, soft, no odor. Predominately silt and clay with ~40% medium to fine sand to 0.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4-3), and do not react to HCl.					
4335		CL	<b>SILTY SAND</b> (15.75-16 feet) Moist, loose, no odor. Predominately medium to fine sand with trace fine gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic and are light brown.					
		CL	<b>SANDY LEAN CLAY</b> (16-21.5 feet) Dry to moist, stiff, no odor. Predominately silt and clay with ~40% medium to fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4-3), and do not react to HCl.					
		CL						
20		SC	<b>CLAYEY SAND</b> (21.5-22 feet) Moist, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (22-22.5 feet) Moist, medium dense, no odor.					
		SP-SM						
4330		SW						

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-9**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **3** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25	4325		Predominately medium to fine sand with trace coarse sand to ~5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>POORLY-GRADED SAND with SILT</b> (22.5-22.75 feet)					
			Moist, dense, no odor.					
			Predominately medium to fine sand to 1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (22.75-25.5 feet)					
			Saturated, medium dense, no odor.					
			Predominately medium to fine sand with ~5% fine gravel to 12 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic and are brown.					
		SP						
		SM	<b>POORLY-GRADED SAND</b> (25.5-25.75 feet)					
			Saturated, medium dense, no odor.					
30	4320	SP	Predominately fine sand (<0.5mm) with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SILTY SAND</b> (25.75-26.25 feet)					
			Moist, dense, no odor.					
		SP-SM	Predominately fine sand (<0.5mm) with ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
			<b>POORLY-GRADED SAND</b> (26.25-26.75 feet)					
			Saturated, dense, no odor.					
			Predominately fine sand (<0.5mm) with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>SANDY LEAN CLAY</b> (26.75-27 feet)					
			Dry to moist, firm, no odor.					
			Predominately silt and clay with ~40% medium to fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4-3), and do not react to HCl.					
35		CL	<b>POORLY-GRADED SAND with SILT</b> (27-28.25 feet)					
		SW-SM	Saturated, medium dense, no odor.					
			Predominately medium to fine sand to 2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (28.25-29.5 feet)					
			Moist, dense, no odor.					
		CL	Predominately medium to fine sand with ~5% fine gravel to 8mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (29.5-29.75 feet)					
			Dry to moist, firm, no odor.					
		SW	Predominately silt and clay with ~40% medium to fine sand to 0.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4-3), and do not react to HCl.					
			<b>WELL-GRADED SAND with SILT</b> (29.75-31 feet)					
		SC	Predominately medium to fine sand with trace fine gravel to 6 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are yellowish brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (31-32.25 feet)					
			Dry to moist, stiff, no odor.					
			Predominately silt and clay with ~40% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (32.25-33 feet)					
		CL	Saturated, medium dense, no odor.					
			Predominately medium to fine sand to 1 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>CLAYEY SAND</b> (33-34 feet)					

B/W-9 @ 26 - 31 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4315			Moist, stiff, no odor. Predominately medium to fine sand to 1 mm with ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		CL						
		SW	<b>CLAYEY SAND</b> (34-34.75 feet) Moist, medium dense, no odor. Predominately medium to fine sand with ~10% coarse sand to 4 mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (34.75-35 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (35-35.5 feet) Moist, hard, no odor. Predominately silt and clay with ~40% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4-3), and do not react to HCl.					
40			<b>WELL-GRADED SAND with SILT</b> (35.5-36.75 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (36.75-37 feet) Moist, stiff, no odor. Predominately silt and clay with ~35% medium to fine sand and ~5% coarse sand to 3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4-2), and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (37-38.25 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>WELL-GRADED SAND</b> (38.25-43 feet) Saturated, medium dense, no odor. Predominately coarse to medium sand with ~15% fine sand, ~5% fine gravel to 8 mm, and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (43-45.25 feet) Moist, stiff, no odor. Predominately silt and clay with ~35% medium to fine sand and ~5% coarse sand to 3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4-2), and do not react to HCl.					
		CL						
		CL						
45			<b>SANDY LEAN CLAY</b> (45.25-45.5 feet) Moist, hard, no odor. Predominately silt and clay with ~40% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5-4), and do not react to HCl.					
		SW-SM						
		CL	<b>SANDY LEAN CLAY</b> (45.5-46 feet) Moist, no odor. Predominately silt and clay with ~50% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown (10YR 5-3), and do not react to HCl.					
		CL	<b>WELL-GRADED SAND with SILT</b> (46-46.75 feet) Saturated, medium dense, no odor. Predominately coarse to medium sand with ~15% fine sand, ~10% fine gravel to 8 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are					

B/W-9 @ 38 - 43 Ft.



Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 5 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50	4300	CL	nonplastic, are brown, and do not react to HCl. <b>SANDY LEAN CLAY</b> (46.75-47.5 feet) Moist, firm, no odor. Predominately silt and clay with ~50% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown (10YR 4-3), and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (47.5-49.5 feet) Moist, stiff, no odor. Predominately silt and clay with ~40% fine sand (<0.5mm). The fines have medium plasticity and low toughness, are brown (10YR 5-3), and do not react to HCl.					
			<b>LEAN CLAY</b> (49.5-51 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~10% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and do not react to HCl.					
			<b>SANDY LEAN CLAY</b> (51-54 feet) Dry to moist, firm to hard, no odor. Predominately silt and clay with ~30% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3) to yellowish brown (10YR 5-4), and have a strong reaction to HCl.					
55		CL	<b>LEAN CLAY</b> (54-55 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~10% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and have a strong reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (55-56 feet) Moist, hard, no odor. Predominately silt and clay with ~35% medium to fine sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4-4), and do not react to HCl.					
	4295	SM	<b>SILTY SAND</b> (56-57.5 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~5% coarse sand to 3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (57.5-58.75 feet) Moist, hard, no odor. Predominately silt and clay with ~35% medium to fine sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4-4), and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (58.75-59.5 feet) Moist, dense, no odor. Predominately medium to fine sand to 1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
60		SM	<b>SILTY SAND</b> (59.5-61 feet) Moist, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4290	ML	<b>SANDY SILT</b> (61-61.75 feet) Moist, stiff, no odor. Predominately silt and clay with ~40% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 5-3), and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (61.75-64 feet)					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			Saturated, medium dense, no odor. Predominately medium to fine sand with trace coarse sand to ~5 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
65		SC	<b>CLAYEY SAND</b> (64-67.5 feet) Moist, dense, no odor. Predominately fine sand (<0.5mm) with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl.					
	4285							
		CL	<b>SANDY LEAN CLAY</b> (67.5-70.75 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% fine gravel to 8 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness and are brown (10YR 4-3).					
70								
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (70.75-71.5 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4280							
		CL	<b>SANDY LEAN CLAY</b> (71.5-78.5 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~30% medium to fine sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5-2), and do not react to HCl.					
75								

B/W-9 @ 60 - 65 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 7 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4275								
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (78.5-80 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~5% coarse sand to 3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
80		SW	<b>WELL-GRADED SAND</b> (80-81.75 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4270		SM	<b>SILTY SAND</b> (81.75-83.75 feet) Saturated, dense, no odor. Predominately fine sand (<0.5mm) with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (83.75-84.5 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with trace coarse sand to 3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and have a weak to strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (81.75-83.75 feet) Dry to moist, very dense, no odor. Predominately medium to fine sand to 0.5 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak to strong reaction to HCl.					
85		SW	<b>WELL-GRADED SAND</b> (85-86.5 feet) Saturated, medium dense, no odor. Predominately coarse to medium sand to 4 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4265		CL	<b>SANDY LEAN CLAY</b> (86.5-87.5 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~35% medium to fine sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and have a strong reaction to HCl.					
		SW	<b>WELL-GRADED SAND</b> (87.5-88 feet) Saturated, medium dense, no odor.					
		CL						

B/W-9 @ 78 - 83 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒

Project Number:

121243.021Sheet 8 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
90	4260	SM	Predominately coarse to medium sand to 4 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. <b>SANDY LEAN CLAY</b> (88-89 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~30% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4-3), and do not react to HCl. <b>SILTY SAND</b> (89-90.75 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL						
		SC	<b>LEAN CLAY</b> (90.75-91 feet) Dry to moist, firm, no odor. Predominately silt and clay with ~10% fine sand (<0.5mm). The fines have medium plasticity and toughness, are reddish brown (5YR 5-3), and have a strong reaction to HCl. <b>CLAYEY SAND</b> (91-93 feet) Moist, medium dense, no odor. Predominately medium to fine sand with ~10% coarse sand to 3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (93-94 feet) Moist, dense, no odor. Predominately medium to fine sand with ~10% coarse sand to 3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and have a weak reaction to HCl.					
95		CL	<b>SANDY LEAN CLAY</b> (94-96.75 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~30% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4-3), and do not react to HCl.					
	4255							
		SC	<b>CLAYEY SAND</b> (96.75-98.5 feet) Dry to moist, dense, no odor. Predominately fine sand (<0.5mm) and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (98.5-100.5 feet) Moist, medium dense, no odor. Predominately fine sand (<0.5mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
100								
		SM	<b>SILTY SAND</b> (100.5-101 feet) Moist to saturated, medium dense, no odor.					
	4250	SC	Predominately medium to fine sand with trace coarse sand to 3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 9 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
105	4245		react to HCl.					
		SC	<b>CLAYEY SAND</b> (101-102 feet) Dry to moist, dense, no odor. Predominately fine sand (<0.5mm) and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
			<b>CLAYEY SAND</b> (102-104 feet) Moist, medium dense, no odor. Predominately fine sand (<0.5mm) and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (104-105 feet) Dry to moist, dense, no odor. Predominately fine sand (<0.5mm) and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
110	4240	SC	<b>CLAYEY SAND</b> (105-109.5 feet) Moist, medium dense, no odor. Predominately fine sand (<0.5mm) and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		CL	<b>LEAN CLAY</b> (109.5-118 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~10% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and high toughness, are brown (10YR 4-3) and dark gray (2.5Y 4-1), and have a strong to no reaction to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 10 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115								
	4235							
		CL	<b>SANDY LEAN CLAY</b> (118-120 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% coarse sand to 4 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4-3), and do not react to HCl.					
120		SM	<b>SILTY SAND</b> (120-121 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 0.5 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4230	SM	<b>SILTY SAND</b> (121-121.5 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 0.5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW						
		SM	<b>WELL-GRADED SAND</b> (121.5-122 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with trace coarse sand to 3 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SILTY SAND</b> (122-127 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 0.5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
125								
	4225							
		CL	<b>SANDY LEAN CLAY</b> (127-132.5 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~40% fine sand (<0.5mm).					

B/W-9 @ 121 - 126 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 11 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
130	4220		The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are dark gray (GLEY N4-1), and do not react to HCl.					
135	4215	SP	<b>POORLY-GRADED SAND</b> (132.5-135 feet) Saturated, dense, no odor. Predominately medium to fine sand to 1 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (135-139.25 feet) Moist, dense, no odor. Predominately fine sand (<0.5mm) and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are yellowish brown, and do not react to HCl.					
140		SP	<b>POORLY-GRADED SAND</b> (139.28-140 feet) Saturated, dense, no odor. Predominately medium to fine sand to 2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are reddish brown, and do not react to HCl.					
		SP-SM	<b>POORLY-GRADED SAND with SILT</b> (140-143.25 feet) Saturated, dense, no odor. Predominately medium to fine sand to 1 mm with ~10% silt					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-9Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 12 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4210		and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (143.25-145 feet) Moist, dense, no odor. Predominately fine sand (<0.5mm) and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are yellowish brown, and do not react to HCl.					
145		SP	<b>POORLY-GRADED SAND</b> (145-147.25 feet) Saturated, dense, no odor. Predominately medium to fine sand to 0.5 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4205							
		SM	<b>SILTY SAND</b> (147.25-148 feet) Saturated, dense, no odor. Predominately fine sand (<0.5mm) with ~30% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP	<b>POORLY-GRADED SAND</b> (148-149 feet) Saturated, dense, no odor. Predominately medium to fine sand to 0.5 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>LEAN CLAY with SAND</b> (149-149.5 feet) Dry to moist, hard, no odor.					
150		SP	Predominately silt and clay with ~20% fine sand (<0.5mm). The fines have medium plasticity and toughness, are brown (10YR 5-3), and do not react to HCl. <b>POORLY-GRADED SAND</b> (149.5-151.5 feet) Saturated, dense, no odor. Predominately medium to fine sand to 0.5 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and are brown.					
	4200							
		CL	<b>SANDY LEAN CLAY</b> (151.5-152 feet) Moist, stiff, no odor. Predominately silt and clay with ~40% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness and are brown (10YR 4-3).					
		SM	<b>SILTY SAND</b> (152-153 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (153-155.5 feet) Moist, stiff, no odor.					



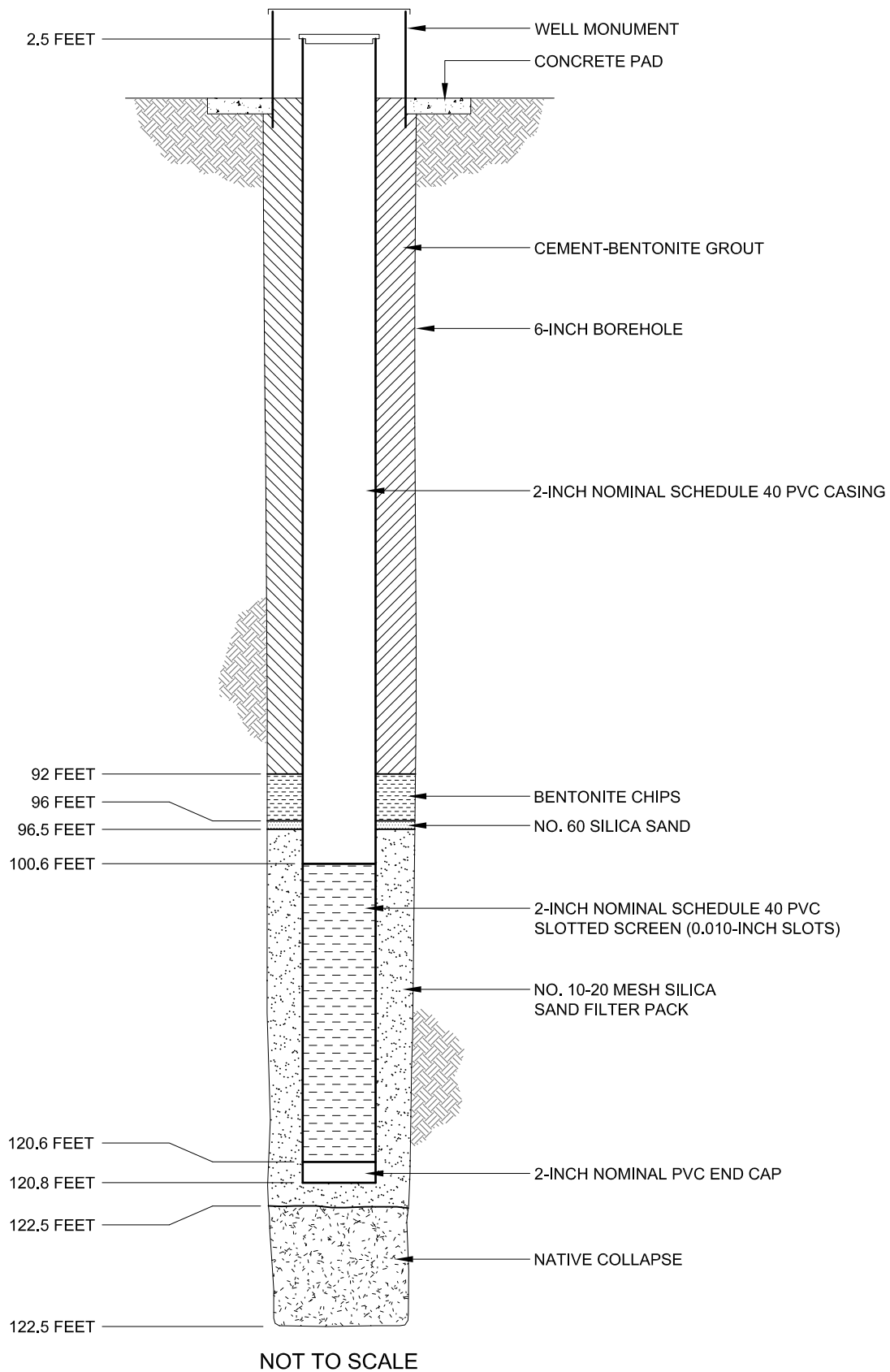
# BORING LOG

Well Number: **B/W-9**

Sheet 13 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155			Predominately silt and clay with ~35% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and do not react to HCl.					
	4195	SM	<b>SILTY SAND</b> (155.5-156 feet) Moist to saturated, medium dense, no odor.					
		SM	Predominately medium to fine sand to 1.5 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>SILTY SAND</b> (156-157 feet) Saturated, medium dense, no odor.					
		SW	Predominately medium to fine sand with ~10% coarse sand to 3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			<b>WELL-GRADED SAND</b> (157-163 feet) Saturated, medium dense, no odor.					
			Predominately medium to fine sand with ~5% coarse sand to ~5 mm with ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
160								
	4190							
		SM	<b>SILTY SAND</b> (163-164 feet) Moist to saturated, medium dense, no odor.					
			Predominately medium to fine sand to 2 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (164-165.5 feet) Moist, dense, no odor.					
			Predominately medium to fine sand to 1 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
165								

SONIC METHOD LOG YERINGTON.GPJ BRN&amp;CALD.GDT 1/31/06



DATE:  
April 2006

PROJECT NUMBER:  
129684

**BROWN AND  
CALDWELL**  
Carson City, Nevada

Atlantic Richfield  
Company

**Figure 2-14**

**Well B/W-10D Construction Details**

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 13

Boring Location: <b>North of Sunset Hills residential area</b>		Elevation: <b>4341.6 feet amsl</b>	East: <b>324460.1</b> North: <b>1569181.6</b>
Drilling Contractor: <b>WDC</b>	Driller: <b>B. Zamow</b>	Date Started: <b>7/26/05</b>	Date Finished: <b>8/5/05</b>
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>165.0</b>	Water Depth: (feet) <b>22' / 19.49'</b>
Sampling Method: <b>Core Barrel</b>	Borehole Diameter: <b>6"</b>	Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>100.6-120.6 ft., bottom at 120.8 ft.</b>	
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>	Filter Material: <b>#10-20 Silica Sand</b>
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		CL	<b>LEAN CLAY</b> (0-14 feet) Dry, hard, no odor. Primarily silt and clay with ~10% medium to fine sand and trace coarse sand to ~3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and have a strong reaction to HCl.					<p>Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.</p> <p>Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.</p> <p>Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.</p> <p>All depths are below land surface unless stated otherwise.</p> <p>WELL DESIGN for B/W-10D: Screened Interval: 100.6-120.6 feet. Bottom of sump: 120.8 feet.</p> <p>Cement Grout: 0-92 feet. Bentonite Chips: 92-96 feet. Filter Pack: #60 Sand 96-96.5 feet, #10-20 Sand 96.5-122.5 feet. Bentonite Chips: 122.5-165 feet</p> <p>Depth to Water Measuring Point is Top of PVC Casing.</p> <p>Top of PVC Elevation: 4,344.08 feet, amsl. PVC Stick-up: 2.5 feet above land surface.</p>

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4330								
15		CL	<b>SANDY LEAN CLAY</b> (14-15.5 feet) Dry, hard, no odor. Primarily silt and clay with ~50% medium to fine sand and trace coarse sand to 4 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
4325		SW	<b>WELL-GRADED SAND with GRAVEL</b> (15.5-17 feet) Moist to dry, loose, no odor. Primarily coarse to medium sand with ~20% fine gravel to ~15 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (17-18 feet) Moist, medium dense, no odor. Primarily coarse to medium sand with ~40% gravel and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (18-19.5 feet) Moist to dry, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% fine gravel to ~8 mm, and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
20		CL	<b>GRAVELLY LEAN CLAY with SAND</b> (19.5-20.5 feet) Moist, hard, no odor. Primarily silt and clay with ~20% sand and ~30% gravel to ~25 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (20.5-21 feet) Dry, medium dense, no odor.					
4320		SW	Primarily medium to fine sand with ~20% gravel and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl. <b>WELL-GRADED SAND</b> (21-24.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are brown, and do not react to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 3 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25		SW	<b>WELL-GRADED SAND</b> (24.5-25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1.5 mm with trace silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (25-26 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~35% gravel to ~30 mm, and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
4315		SW	<b>WELL-GRADED SAND with GRAVEL</b> (26-27.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~35% gravel to ~30 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (27.5-29.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm with trace silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
30		GW-GM	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (29.5-30 feet) Saturated, medium dense, no odor. Primarily gravel to ~20 mm with ~20% medium to fine sand, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		ML	<b>SILT</b> (30-32 feet) Moist, soft, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have low to medium plasticity and low toughness, are olive brown (2.5Y 4/3), and do not react to HCl. Some black organic streaks.					
4310		CL	<b>LEAN CLAY</b> (32-32.5 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		ML	<b>SILT</b> (32.5-33.5 feet) Moist, soft, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have low to medium plasticity and low toughness, are olive brown (2.5Y 4/3), and do not react to HCl. Some black organic streaks.					
		CL	<b>LEAN CLAY</b> (33.5-35.5 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Some black organic streaks.					
35		CL	<b>LEAN CLAY</b> (35.5-37.5 feet) Moist, very soft, no odor.					

B/W-10 @ 26 - 31 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒

Project Number:

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4305		Primarily silt and clay with ~20% medium to fine sand and trace coarse sand to ~3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Some black organic streaks.					
		CL	<b>SANDY LEAN CLAY</b> (37.5-38.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~30% medium to fine sand and trace fine gravel to ~15 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
40		SW-SM	<b>WELL-GRADED SAND with GRAVEL</b> (38.5-40.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~20% coarse sand, ~25% gravel to ~25 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (40.5-41.5 feet) Moist, hard, no odor. Primarily silt and clay with ~35% medium to fine sand and trace coarse sand to ~4.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
	4300	SM	<b>SILTY SAND with GRAVEL</b> (41.5-44.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~15% gravel to 20 mm, and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
45		SM	<b>SILTY SAND with GRAVEL</b> (44.5-48.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~15% fine gravel to ~15 mm, and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4295							
		SM	<b>SILTY SAND</b> (48.5-49 feet) Saturated, medium dense, no odor.					
		SW	Primarily medium to fine sand with ~10% fine gravel to ~15 mm and ~20% silt and clay. The sand and gravel are					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 5 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50	4290		subangular to subrounded. The fines are nonplastic, and are brown. <b>WELL-GRADED SAND</b> (49-55 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm with ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
55	4285	SW-SM	<b>WELL-GRADED SAND with SILT</b> (55-58 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. From 55-56.5 feet the interval has elongated gravel, from 56.5-58 the interval has no gravel.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (58-59 feet) Saturated, medium dense no odor. Primarily medium to fine sand with ~20% coarse sand, ~15% fine gravel to ~15 mm, and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW-GM	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (59-60 feet) Saturated, medium dense, no odor. Primarily gravel to ~25 mm with ~15% medium to fine sand, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
60	4280	SM SW-SM	<b>SILTY SAND</b> (60-60.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% gravel to 20 mm, and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are reddish brown, and do not react to HCl. Red oxidized staining. <b>WELL-GRADED SAND with GRAVEL</b> (60.25-63.5 feet) Saturated, medium dense, no odor.					

B/W-10 @ 50 - 55 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			Primarily medium to fine sand with ~15% gravel to ~25 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl. No gravel in the interval from 61.5-63.5					
		SW	<b>WELL-GRADED SAND</b> (63.5-64.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm with trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. Some reddish brown iron oxide streaks at ~63 feet.					
65		SW	<b>WELL-GRADED SAND</b> (49-55 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm with trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4275							
		GW	<b>WELL-GRADED GRAVEL with SAND</b> (67-69.5 feet) Saturated, medium dense, no odor. Primarily gravel to ~20 mm with ~15% coarse to medium sand and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
70		CL	<b>LEAN CLAY with SAND</b> (69.5-72 feet) Moist to saturated, loose, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subrounded. The fines have low to medium plasticity and low toughness, are dark yellowish brown (10YR 4/4), and do not react to HCl. Interval has some reddish brown iron oxide streaks.					
	4270							
		SP-SM	<b>POORLY-GRADED SAND with SILT</b> (72-73.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand (<0.5 mm) with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are reddish brown, and do not react to HCl.					
		CL	<b>LEAN CLAY with SAND</b> (73.5-74.5 feet) Moist to saturated, soft to stiff, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subrounded. The fines have low to medium plasticity and low toughness, are olive brown (2.5Y 4/3), and do not react to HCl.					
75		SW-SM	<b>WELL-GRADED SAND with SILT</b> (74.5-79 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are					

B/W-10 @ 64 - 69 Ft.



Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 7 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
	4265		nonplastic, are brown, and do not react to HCl.					
80	4260	SW	<b>WELL-GRADED SAND with GRAVEL</b> (79-84 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
85	4255	SW-SM	<b>WELL-GRADED SAND with SILT</b> (84-87.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (87.5-89.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~25% coarse sand, trace fine gravel to ~10 mm, and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are					

B/W-10 @ 83.5 - 88.5 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			nonplastic, are brown, and do not react to HCl.					
90		CL	<b>LEAN CLAY with SAND</b> (89.5-92 feet) Moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl. Some black organic streaks.					
	4250							
		CL	<b>LEAN CLAY with SAND</b> (94.5-95 feet) Moist, stiff to hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1.5 mm. The sand is subangular to subrounded. The fines low to medium plasticity and low toughness in the upper and lower portions of the interval, medium plasticity and toughness in the middle portion of the interval, are brown (10YR 5/3), and do not react to HCl. Some black organic streaks.					
95								
	4245							
		SW	<b>WELL-GRADED SAND</b> (97-101 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm with ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
100								
		SW	<b>WELL-GRADED SAND</b> (101-102.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 9 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			with ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (102.5-107 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~25 mm with ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.	B/W-10 @ 100 - 105 Ft.				
105								
	4235							
		CL	<b>LEAN CLAY</b> (107-107.5 feet) Moist, stiff, no odor.					
		SW-SM	Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and do not react to HCl. <b>WELL-GRADED SAND with SILT</b> (107.5-115 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~6 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. Increased grain size (includes ~15% angular to subrounded gravel to ~25 mm) between ~114 and 115 feet.					
110								
	4230							

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-10**Soil Boring ☐Monitoring Well ☒

Project Number:

**121243.021**Sheet **10** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115		GW-GM	<b>WELL-GRADED GRAVEL with SILT and SAND</b> (115-116.5 feet) Saturated, medium dense, no odor. Primarily gravel to 40 mm with ~15% sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
4225		SW	<b>WELL-GRADED SAND</b> (116.5-122.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
120		SW	<b>WELL-GRADED SAND with GRAVEL</b> (119.5-121.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4220		SW	<b>WELL-GRADED SAND</b> (121.5-122.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~6 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND with GRAVEL</b> (122.5-124 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~20% gravel to ~30 mm, and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
125		SW	<b>WELL-GRADED SAND</b> (124-124.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
4215		SW-SM	<b>WELL-GRADED SAND with SILT</b> (124.5-127.75 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% fine sand, trace fine gravel to ~9 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					

B/W-10 @ 120 - 125 Ft.

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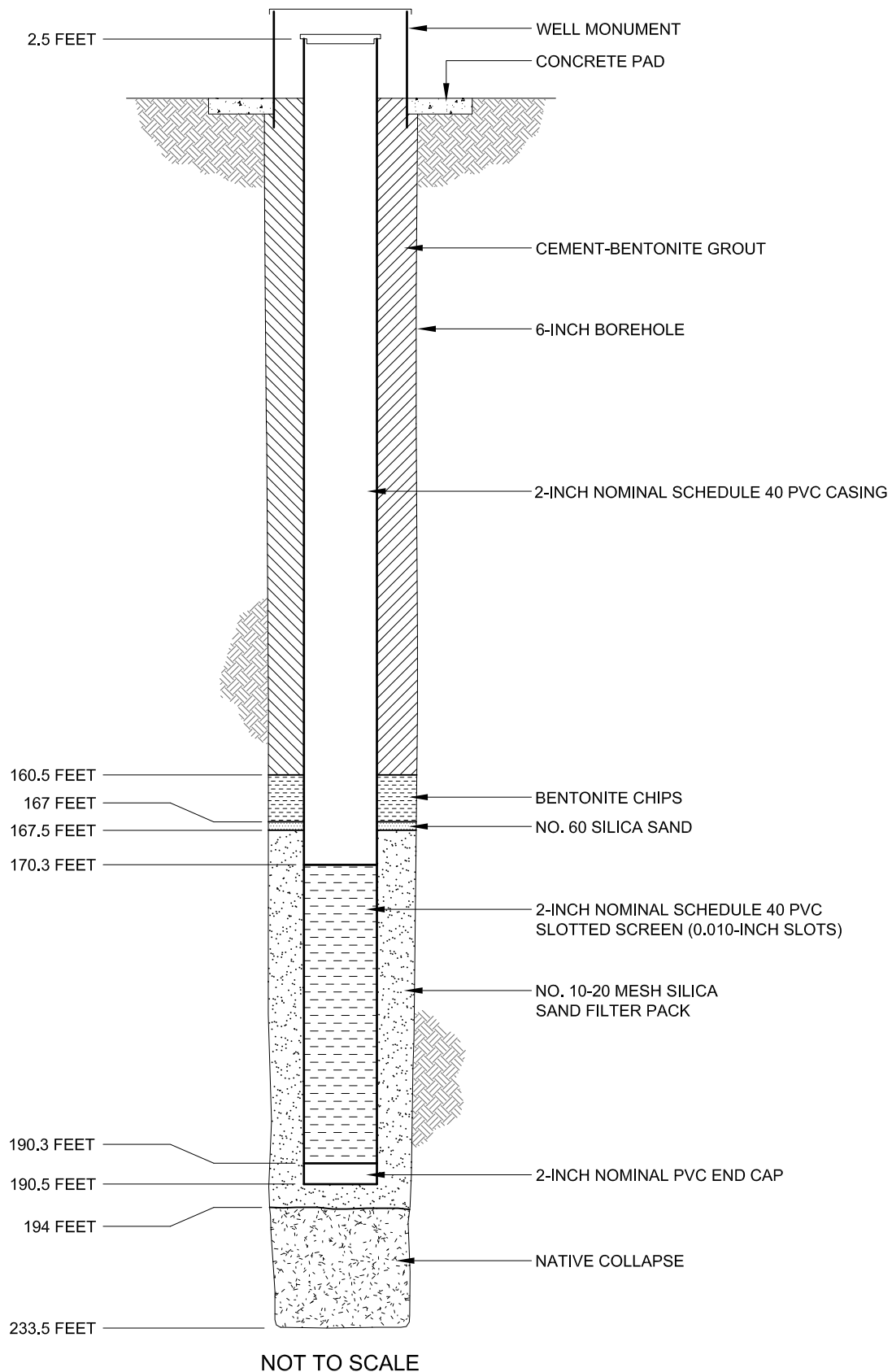
Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
130	4210	ML	<b>SANDY SILT</b> (127.75-128.5 feet) Moist, firm, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (128.5-129.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		ML	<b>SANDY SILT</b> (129.5-130.5 feet) Moist, firm, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		CL	<b>LEAN CLAY</b> (130.5-132 feet) Moist, hard, no odor. Primarily silt and clay with ~10% sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (132-133 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		CL	<b>LEAN CLAY</b> (130.5-132 feet) Moist, hard, no odor. Primarily silt and clay with ~10% sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (132-133 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (134.5-135 feet) Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~12 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness and are brown.					
		CL	<b>LEAN CLAY with SAND</b> (135-136 feet) Moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
		SM	<b>SILTY SAND</b> (136-136.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
135	4205	CL	<b>SILTY SAND</b> (136.5-137 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW	<b>WELL-GRADED SAND</b> (137-145 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~5% gravel to ~30 mm, and ~5% silt and clay. The sand and					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 12 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4200			gravel are subrounded. The fines are nonplastic, are brown, and do not react to HCl. The interval from 145-147.5 feet has ~15% gravel to 50 mm. The gravel is subrounded.	B/W-10 @ 140 - 145 Ft.				
145		SW	<b>WELL-GRADED SAND</b> (145-147.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~15% gravel to ~50 mm, and ~5% silt and clay. The sand and gravel are subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
4195		GW-GM	<b>WELL-GRADED GRAVEL with SILT</b> (147.5-149.5 feet) Saturated, dense, no odor. Primarily gravel to ~30 mm with ~10% coarse to medium sand and ~10% silt and clay. The sand is angular to subrounded, the gravel is subangular to subrounded. The fines are nonplastic, are dark brown, and do not react to HCl.					
150		CL	<b>LEAN CLAY</b> (149.5-151 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3 to 10YR 5/3), and do not react to HCl.					
4190		SM	<b>SILTY SAND</b> (152-153.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4.5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	<b>SILTY SAND</b> (153.5-154 feet)					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-10Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 13 of 13

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155		CL	Saturated, dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM						
		GW-GM	<b>SANDY LEAN CLAY</b> (154-154.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% coarse to medium sand and ~10% fine gravel to ~15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
		GW-GM						
	4185		<b>SILTY SAND with GRAVEL</b> (154.5-155 feet) Saturated to moist, medium dense, no odor. Primarily coarse to medium sand with ~20% fine gravel to ~15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are yellowish brown, and have a strong reaction to HCl.					
			<b>WELL-GRADED GRAVEL with SILT and SAND</b> (155-155.5 feet) Saturated, medium dense, no odor. Primarily gravel to ~75 mm with ~20% coarse to medium sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are olive brown, and have a strong reaction to HCl.					
			<b>WELL-GRADED GRAVEL with SILT and SAND</b> (155.5-160 feet) Saturated, medium dense, no odor. Primarily gravel to ~55 mm with ~25% coarse to medium sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
160		CL	<b>SANDY LEAN CLAY</b> (160-161.75 feet) Moist, stiff, no odor. Primarily silt and clay with ~30% sand and trace fine gravel to ~15 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are light yellowish brown (2.5Y 6/3), and have a strong reaction to HCl.					
	4180							
		CL	<b>SANDY LEAN CLAY</b> (154-154.5 feet) Moist to dry from 161.75-162 feet, dry from 162-165 feet, very hard, no odor. Primarily silt and clay with ~35% coarse to medium sand and ~10% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (7.5YR 5/2), and have a strong reaction to HCl.					
165								



DATE:  
April 2006

PROJECT NUMBER:  
129684

**BROWN AND  
CALDWELL**  
Carson City, Nevada

Atlantic Richfield  
Company

**Figure 2-15**

**Well B/W-11D Construction Details**



Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 1 of 19

Boring Location: <b>On mine site, near lined evaporatin ponds</b>		Elevation: <b>4368.1 feet amsl</b>		East: <b>321936</b> North: <b>1554614.6</b>	
Drilling Contractor: <b>WDC</b>		Driller: <b>B. Zamow</b>		Date Started: <b>9/28/05</b> Date Finished: <b>9/27/05</b>	
Drilling Equipment: <b>Gus Pech GP24-400RS, Diedrich Sonic Head</b>		Total Depth: (feet) <b>233.5</b>		Water Depth: (feet) <b>45' / 35.84'</b>	
Sampling Method: <b>Core Barrel</b>		Borehole Diameter: <b>6"</b>		Well Diameter and Material: <b>2-inch PVC</b>	
Drilling Method: <b>Sonic, utilized 6" casing and a 4.5" core barrel</b>		Screened Interval and Well Depth: <b>170.3-190.3 ft., bottom at 190.5 ft.</b>			
Well Seal: <b>Bentontite and Cement</b>		Slot Size: <b>0.020"</b>		Filter Material: <b>#10-20 Silica Sand</b>	
Logged By: <b>C. Gardner</b>		Development Method: <b>Swabbed, bailed, pumped</b>			

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		VLT	<b>Vat Leach Tailings</b> (0-2.25 feet) Dry, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 20 mm and ~20% silt and clay. The sand and gravel is angular. The fines are nonplastic, yellow, and do not react to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
	4365	SW-SM	<b>WELL-GRADED SAND WITH SILT</b> (2.25-7.75 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~5mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and react strongly to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.  WELL DESIGN B/W-11D: Screened Interval: 170.3-190.3 feet. Bottom of sump: 190.5 feet.  Cement Grout: 0-160.5 feet. Bentonite Chips: 160.5-167 feet. Filter Pack: #60 Sand 167-167.5 feet, #10-20 Sand 167.5-194 feet. Bentonite Chips: 194-233.5 feet
	4360	SC	<b>CLAYEY SAND</b> (7.75-8.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.					
		SM	<b>SILTY SAND</b> (8.5-9.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are					Top of PVC Elevation: 4,370.60 feet amsl. PVC Stick-up: 2.5 feet above land surface.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 2 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
15	4355		nonplastic, brown, and react strongly to HCl.					
		SM	<b>SILTY SAND</b> (9.5-10.5 feet) Dry, medium dense, no odor. Primarily coarse to fine sand with ~10% gravel to ~12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong to no reaction to HCl.					
		SW-SM	<b>SILTY SAND with GRAVEL</b> (10.5-11 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong to no reaction to HCl.					
			<b>WELL-GRADED SAND with SILT and GRAVEL</b> (11-13.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~40mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (13.5-14.75 feet) Dry, medium dense, no odor. Primarily coarse to fine sand with ~20% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, reddish brown, and have no reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (14.75-15 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~45% medium to coarse sand and trace gravel to ~5 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/6), and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (15-15.5 feet) Dry, dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl.					
			<b>SANDY LEAN CLAY</b> (15.5-16 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~45% medium to coarse sand and trace gravel to ~5 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/6), and do not react to HCl.					
		CL	<b>CLAYEY SAND with GRAVEL</b> (16-18.25 feet) Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl.					
		SW-SM	<b>SANDY LEAN CLAY</b> (18.25-18.75 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~40% medium to coarse sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
20	4350	SC	<b>WELL-GRADED SAND WITH SILT</b> (18.75-19 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			<b>SILTY SAND</b> (19-19.5 feet) Dry, dense, no odor.					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-11**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **3** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
25	4340	SM	Primarily medium to fine sand with trace gravel to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl. <b>CLAYEY SAND</b> (19.5-20.5 feet) Dry, dense, no odor.					
		SM	Primarily medium to fine sand with trace gravel to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl. <b>CLAYEY SAND</b> (20.5-23 feet) Dry, dense, no odor.					
		SM	Primarily medium to fine sand with trace gravel to ~10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl. <b>SILTY SAND with GRAVEL</b> (23-24.5 feet) Dry, medium dense, no odor.					
		SM	Primarily coarse to medium sand with ~40% gravel to ~20 mm and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, yellowish brown, and have no reaction to HCl. <b>SILTY SAND with GRAVEL</b> (24.5-26.5 feet) Dry, dense, no odor.					
		SC	Primarily coarse to fine sand with ~30% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl. <b>SILTY SAND</b> (26.5-28.5 feet) Dry, dense, no odor.					
		SW-SM	Primarily medium to fine sand with ~10% gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl. <b>CLAYEY SAND</b> (28.5-30 feet) Dry to moist, dense, no odor.					
		SM	Primarily medium to fine sand with trace coarse sand to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl. <b>WELL-GRADED SAND with SILT</b> (30-32 feet) Dry, medium dense, no odor.					
		SC	Primarily medium to fine sand with trace gravel to ~15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl. <b>SILTY SAND</b> (32-33 feet) Dry, dense, no odor.					
35	4335	SC	Primarily medium to fine sand with ~10% gravel to ~12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl. <b>CLAYEY SAND</b> (33-33.5 feet) Dry, dense, no odor.					
		SC	Primarily medium to fine sand to ~2 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl. <b>CLAYEY SAND</b> (33.5-36 feet) Dry to moist, dense, strong acid odor.					
			Primarily medium to fine sand with trace gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 4 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SC	<b>CLAYEY SAND</b> (36-38 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
4330		SM	<b>SILTY SAND</b> (38-41.5 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines have low plasticity and toughness, brown, and have no reaction to HCl.					
40								
		SC	<b>CLAYEY SAND</b> (41.5-45 feet) Moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~30 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
4325								
45		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (45-46.5 feet) Saturated, medium dense, strong acid odor. Primarily coarse to medium sand with ~15% gravel to ~20mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (46.5-49 feet) Moist, medium dense, strong acid odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
4320								
		SM	<b>SILTY SAND</b> (49-50.5 feet)					

B/W-11 @ 45 - 50 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 5 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
50			Saturated, medium dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (50.5-52.5 feet) Saturated, medium dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4315	SM	<b>SILTY SAND</b> (52.5-55 feet) Dry to moist, medium dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
55		SM	<b>SILTY SAND</b> (55-55.75 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (55.75-59 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~10% coarse sand to ~4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4310							
60		SC	<b>CLAYEY SAND</b> (59-62.5 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with trace gravel to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 6 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4305		SC	<b>CLAYEY SAND</b> (62.5-66.75 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
65								
		SM	<b>SILTY SAND</b> (66.75-68 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
4300		SC	<b>CLAYEY SAND</b> (68-70 feet) Moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
70		SM	<b>SILTY SAND</b> (70-72 feet) Moist, dense, strong acid odor. Primarily medium to fine sand with trace coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (72-74.5 feet) Moist, medium dense, strong acid odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~30% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
4295								
		SM	<b>SILTY SAND</b> (74.5-75.5 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~25% silt and clay. The sand is subangular to					
75								

# BORING LOG

Well Number: **B/W-11**

Sheet 7 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SM	subrounded, the gravel is angular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl. <b>SILTY SAND</b> (75.5-76.25 feet)					
		SM	Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. <b>SILTY SAND with GRAVEL</b> (76.25-77.75 feet)					
	4290	SM	Saturated, medium dense, strong acid odor. Primarily coarse to medium sand with ~15% gravel to ~10 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl. <b>SILTY SAND</b> (77.75-79 feet)	B/W-11 @ 75 - 80 Ft.				
		SM	Moist, medium dense, strong acid odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to angular. The fines have low plasticity and toughness, are light brown, and have no reaction to HCl. <b>SILTY SAND</b> (79-80 feet)					
80		SC	Saturated, medium dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~12 mm and ~20% silt and clay. The sand and gravel is subangular to angular. The fines are nonplastic, brown, and have no reaction to HCl. <b>CLAYEY SAND</b> (80-88 feet)					
	4285		Moist, dense, strong acid odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to angular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
85								
	4280	SM	<b>SILTY SAND</b> (88-90 feet) Saturated, medium dense, strong acid odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&amp;CALD.GDT 1/31/06

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 8 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
90			Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to angular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (90-91.5 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to angular. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (91.5-94 feet) Dry, very dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
4275								
		SM	<b>SILTY SAND</b> (94-95 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
95		SM	<b>SILTY SAND</b> (95-98 feet) Saturated and medium dense from ~95-96 feet, moist and dense from ~96-98 feet, strong acid odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
4270								
		SC	<b>CLAYEY SAND</b> (98-103 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl.					
100								

B/W-11 @ 95 - 100 Ft.



Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 9 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
105	4265	SC	<b>CLAYEY SAND</b> (103-105.5 feet) Moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (105.5-108.5 feet) Saturated and medium dense from 105.5-106.5 feet, moist and dense from 106.5-108.5 feet, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~15 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
	4260	SC	<b>CLAYEY SAND</b> (108.5-109.5 feet) Moist, dense, acid odor. Primarily medium to fine sand with trace gravel to ~12 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
110		SM	<b>SILTY SAND</b> (109.5-110.5 feet) Dry to moist, dense, weak acid odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (110.5-113 feet) Dry to moist, dense, weak acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have slight plasticity, low toughness, are brown, and have no reaction to HCl.					
	4255	SC	<b>CLAYEY SAND</b> (113-115 feet) Dry to moist, dense, weak acid odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 10 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
115		SM	<b>SILTY SAND</b> (115-118 feet) Dry to moist, dense, weak acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
4250		SC	<b>CLAYEY SAND</b> (118-119 feet) Moist, dense, slight acid odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
120		SM	<b>SILTY SAND</b> (119-121.5 feet) Moist, dense, slight acid odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (121.5-123.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have a strong reaction to HCl. Some strongly developed caliche present.					
4245		SM	<b>SILTY SAND</b> (123.5-125.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
125		SW-SM	<b>WELL-GRADED SILTY SAND</b> (125.5-127 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (127-128 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4240		SW-SM	and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl. <b>WELL-GRADED SAND with SILT</b> (128-135.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine to coarse gravel to ~60 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
130								
4235								
135								
4230		SW-SM	<b>WELL-GRADED SAND with SILT</b> (135.5-138.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (138.75-140 feet) Moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl.					
140		SC	<b>CLAYEY SAND</b> (140-142 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm and ~35% silt and clay. The sand is subangular to					

B/W-11 @ 130 - 135 Ft.

## BORING LOG

Well Number: **B/W-11**

**121243.021**

Sheet **12** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
			subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4225	SM	<b>SILTY SAND</b> (142-142.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have no reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (142.5-144 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>SILTY SAND</b> (144-149.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
145								
	4220							
		SC	<b>CLAYEY SAND</b> (149.5-150.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (150.5-153 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
150								
	4215	SC	<b>CLAYEY SAND</b> (153-154.75 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~12 mm and ~20% silt and clay. The sand is subangular to					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
155			subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
		SM	<b>SILTY SAND with GRAVEL</b> (154.75-155.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~12 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have a weak to strong reaction to HCl.					
		CL						
		SC	<b>SANDY LEAN CLAY</b> (155.5-156 feet) Dry, hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% gravel to ~15 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (7.5YR 4/3), and do not react to HCl.					
		SC	<b>CLAYEY SAND</b> (156-157.5 feet) Dry, dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
4210			<b>CLAYEY SAND</b> (157.5-159 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>SILTY SAND</b> (159-160.9 feet) Moist, dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
160								
		SC	<b>CLAYEY SAND</b> (160.9-161 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SW-SM						
		SC	<b>WELL-GRADED SAND with SILT</b> (161-162 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
4205			<b>CLAYEY SAND</b> (162-163 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (163-164.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
165			<b>CLAYEY SAND</b> (164.5-165 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
		SC						
		SC	<b>CLAYEY SAND</b> (165-165.5 feet)					

B/W-11 @ 159 - 164 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 14 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
170	4200	SM	Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (165.5-167 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
		SC	<b>SILTY SAND</b> (167-167.5 feet) Moist, medium dense, slight acid odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (167.5-169.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have a no reaction to HCl.					
		SM	<b>CLAYEY SAND</b> (169.5-170.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (170.5-171.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4195	SW-SM	<b>SILTY SAND</b> (171.5-172 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (172-173 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>WELL-GRADED SAND with SILT</b> (173-177 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (177-178.25 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~5 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
175	4190	SM	<b>SILTY SAND</b> (178.25-180 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					

B/W-11 @ 173 - 178 Ft.

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 15 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
		SW-SM	<b>WELL-GRADED SAND with SILT and GRAVEL</b> (180-181.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4185	SC	<b>CLAYEY SAND</b> (181.5-187 feet) Moist from ~181-183 feet, dry to moist from ~183 to 187 feet, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
185								
	4180	SW	<b>WELL-GRADED SAND</b> (187-188.5 feet) Saturated, medium dense, slight acid odor. Primarily medium sand with ~10% coarse sand to ~5 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have a strong to no reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (188.5-189.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~5 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
190		SC	<b>CLAYEY SAND</b> (189.5-191 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak to no reaction to HCl.					
		CL	<b>SANDY LEAN CLAY</b> (191-192.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand with trace gravel to ~10 mm. The sand is angular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong to no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (192.5-193.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4					

Project Name: **Yerington Groundwater Investigation**Well Number: **B/W-11**Soil Boring ☐Monitoring Well ☒Project Number: **121243.021**Sheet **16** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
195		CL	mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong to no reaction to HCl. <b>SANDY LEAN CLAY</b> (193.5-194 feet) Dry to moist, hard, no odor.					
		SC	Primarily silt and clay with ~40% medium to fine sand with trace gravel to ~10 mm. The sand is angular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong to no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (194-194.5 feet) Dry, very dense, no odor.					
		SC	Primarily medium to fine sand with trace coarse sand to ~4 mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	<b>CLAYEY SAND</b> (194.5-195 feet) Dry to moist, dense, no odor.					
		SM	Primarily medium to fine sand with trace coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong to no reaction to HCl.					
		SC	<b>CLAYEY SAND with GRAVEL</b> (195-195.75 feet) Moist to saturated, dense, no odor.					
		SC	Primarily coarse to fine sand with ~30% gravel to ~20 mm and ~20% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
4170		SC	<b>SILTY SAND</b> (195.75-198 feet) Saturated, medium dense, no odor.					
		SW-SM	Primarily medium to fine sand with ~5% gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND with GRAVEL</b> (198-198.5 feet) Saturated, medium dense, no odor.					
		SW-SM	Primarily medium to fine sand with ~20% gravel to ~60 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
200		SC	<b>WELL-GRADED SAND with SILT</b> (198.5-199 feet) Saturated, medium dense, no odor.					
		SM	Primarily medium to fine sand with trace gravel to ~8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	<b>CLAYEY SAND with GRAVEL</b> (199-199.5 feet) Saturated, medium dense, no odor.					
		SM	Primarily medium to fine sand with ~20% gravel to ~60 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
4165		SC	<b>WELL-GRADED SAND with SILT</b> (199.5-200 feet) Saturated, medium dense, no odor.					
		SC	Primarily medium to fine sand with trace gravel to ~8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (200-201.5 feet) Dry to moist, dense, no odor.					
		SM	Primarily medium to fine sand with ~5% gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong to no reaction to HCl.					
205		SM	<b>SILTY SAND with GRAVEL</b> (201.5-204 feet) Dry to moist, dense, no odor.					
		SM	Primarily coarse to medium sand with ~20% gravel to ~10					

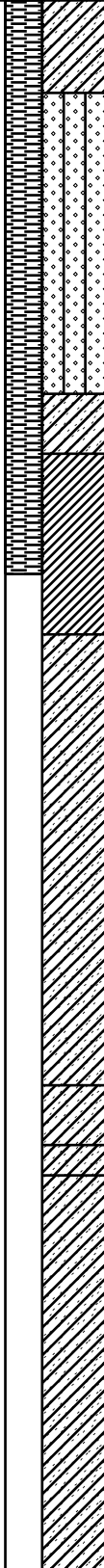


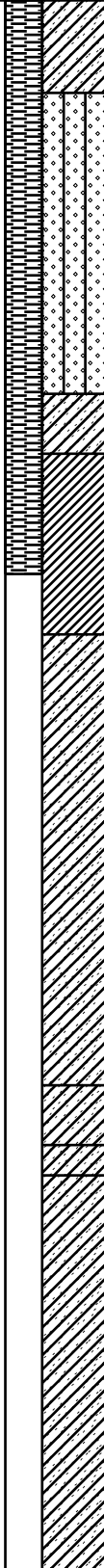


B/W-11 @ 195 - 200 Ft.



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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
210	4160	SC	mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SW-SM	<b>CLAYEY SAND with GRAVEL</b> (204-205 feet) Dry to moist, dense, no odor. Primarily coarse to fine sand with ~30% gravel to ~20 mm and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
			<b>SILTY SAND</b> (205-206 feet) Saturated, medium dense, no odor. Primarily coarse to fine sand with ~10% gravel to ~15 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have a strong to no reaction to HCl.					
		SM	<b>CLAYEY SAND with GRAVEL</b> (206-206.5 feet) Moist to saturated, medium dense, no odor. Primarily coarse to fine sand with ~15% gravel to ~8 mm and ~30% silt and clay. The sand is angular to subangular, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			<b>WELL-GRADED SAND with SILT and</b> (206.5-209 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
			<b>SILTY SAND</b> (209-212 feet) Moist, dense, no odor. Primarily coarse to fine sand with trace gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (212-213 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm and ~40% silt and clay. The sand is angular to subangular, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (213-214 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand to ~4 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SW-SM	<b>WELL-GRADED SAND with SILT</b> (214-217.5 feet) Moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
215	4150	SC	<b>CLAYEY SAND</b> (217.5-218.5 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. Some well-developed gravel-sized caliche is present.					
		SC	<b>CLAYEY SAND</b> (218.5-220 feet) Dry to moist, dense, no odor.					

Project Name: Yerington Groundwater InvestigationWell Number: B/W-11Soil Boring ☐Monitoring Well ☒Project Number: 121243.021Sheet 18 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
220		SW-SM	Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have a strong to no reaction to HCl. <b>WELL-GRADED SAND with SILT</b> (220-222.5 feet) Saturated, dense, no odor.	B/W-11 @ 219 - 224 Ft.				
		SC	<b>CLAYEY SAND</b> (222.5-223 feet) Moist, very dense, no odor.					
4145		CL	Primarily medium to fine sand with ~5% gravel to ~8 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. <b>SANDY LEAN CLAY</b> (223-224.5 feet) Dry to moist from ~223-223.5 feet, dry from ~223.5-224.5 feet, very hard, no odor.					
225		SC	Primarily silt and clay with ~30% medium to fine sand with ~5% gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl. <b>CLAYEY SAND with GRAVEL</b> (224.5-228.25 feet) Dry, very dense, no odor.					
4140		SC	Primarily coarse to fine sand with ~25% gravel to ~75 mm and ~35% silt and clay. Cobbles to ~10 cm comprise ~20% of the interval. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND</b> (228.25-228.75 feet) Dry, very dense, no odor.					
		SC	Primarily medium to fine sand with trace gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are strong brown, and have a strong reaction to HCl.					
		SC	<b>CLAYEY SAND with GRAVEL</b> (228.75-229 feet) Dry, very dense, no odor.					
230			Primarily medium to fine sand with ~20% gravel to ~10 mm and ~35% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl. <b>COBBLES with SANDY CLAY</b> (229-233.5 feet) Dry, very dense, no odor.					
			Primarily cobbles comprised of weathered and non weathered tuff with ~35% sandy clay. The tuff has a gray groundmass with angular to subangular clasts to ~5 mm. The sandy clay is primarily silt and clay with ~40% medium to fine sand to ~2 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, and are yellowish brown (10YR 5/4). The fines have a strong reaction to HCl from					

## ***BORING LOG***

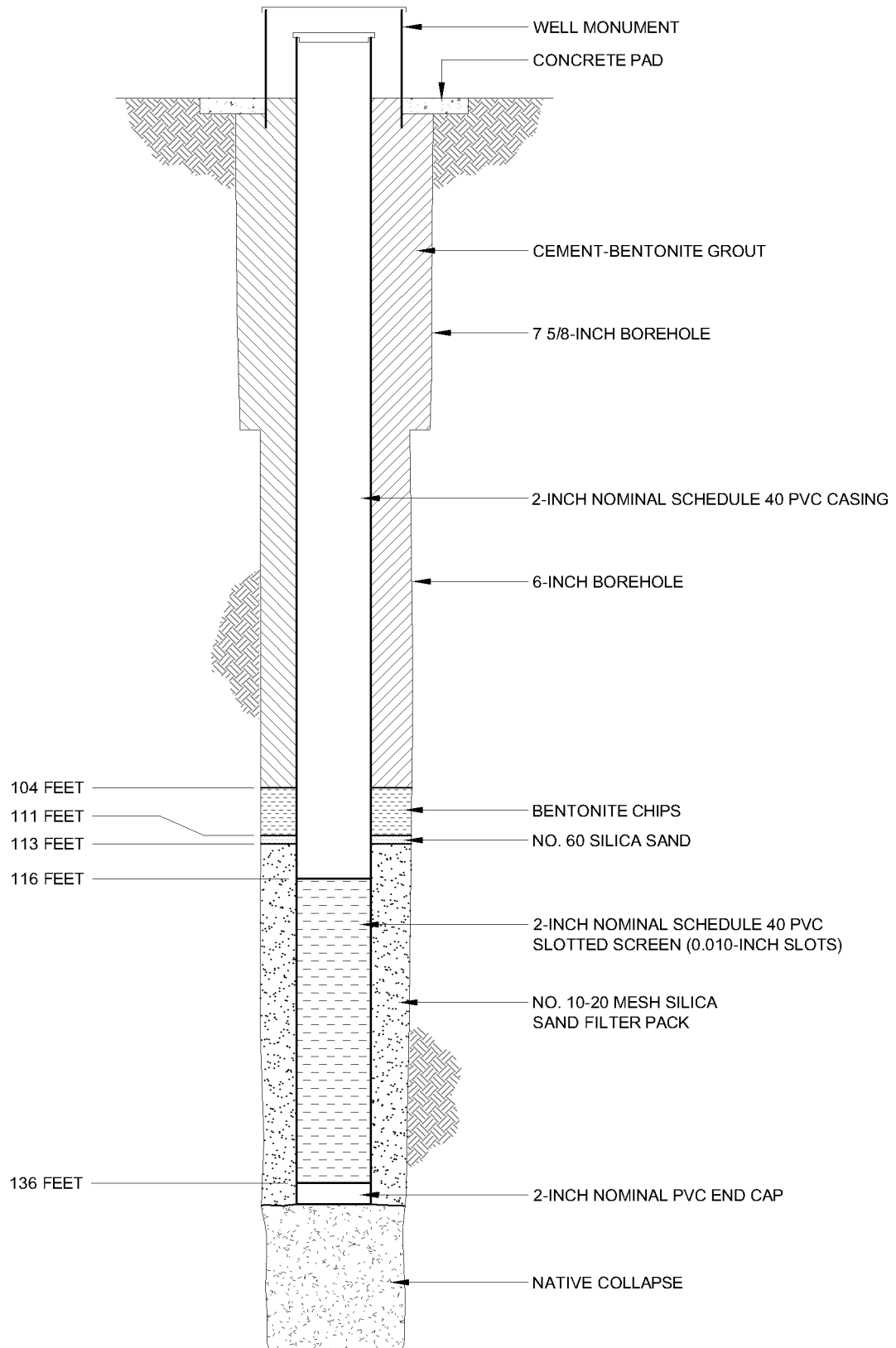
Well Number: **B/W-11**

☐

**121243.021**

Sheet 19 of 19

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log			Remarks
					Sample	Lithology	Well	
4135			~229 to 231 feet, and a weak reaction to HCl from ~231 to 233.5 feet.					



NOT TO SCALE

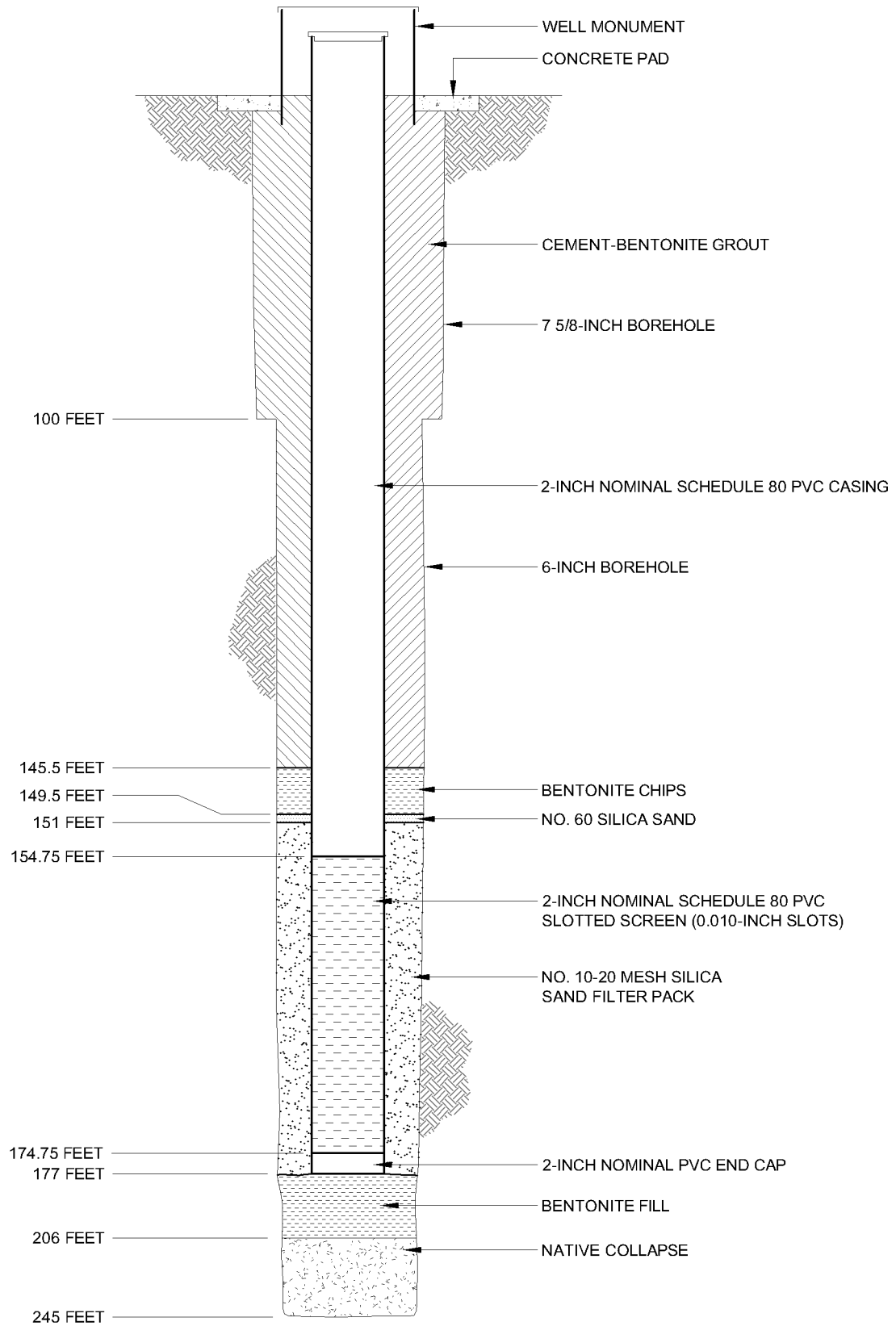
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-18I  
Construction Details**



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-18D  
Construction Details**

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 1 of 14

<b>Boring Location:</b> Located 1/4 mile North on Sunset Hills Road Junction and 1/8 west.		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 11/27/07	<b>Date Finished:</b> 12/15/07
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 245 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> C. Strauss		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SM	<b>Silty Sand (0 - 5.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% coarse sand to 5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.  Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.
		SC	<b>Lean Clay with Sand (5.5 - 12)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 5 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have low to medium plasticity and toughness, and do not react to HCl.					WELL DESIGN for B/W-18D: PVC Stickup: feet. Cement - Bentonite Grout: 0 - 145.5 feet Bentonite Chips: 145.5 - 149.5 feet No. 60 Silica Sand: 149.5 - 151 feet #10-20 Silica Sand Filter Pack: 151 - 177 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 154.75 - 174.75 feet Native Collapse: 206 - 245 feet Additional Bentonite Fill: 177 - 206 feet
10		SP	<b>Poorly Graded Sand (12 - 16)</b> Dry to moist, loose, no odor. Primarily medium to fine sand with a maximum grain size of 2 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Number of wells at this location: 3 Screen intervals for paired wells are labeled at the installed depths.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 2 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		CL	<b>Lean Clay with Sand (16 - 18)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with maximum grain size 1mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have moderate to high plasticity, is very tough, and do not react to HCl.					
20		SM	<b>Silty Sand (18 - 21)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 3mm and ~ 30% fine silt and clay. The sand is subangular to subrounded. The fines have low to medium plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (21 - 22)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 5mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity, is very tough, and do not react to HCl.					
25		SM	<b>Silty Sand (22 - 28)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% coarse grain sand to 2mm with ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (28 - 30)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% coarse grain sand to 5mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
30		SP	<b>Poorly Graded Sand (30 - 32.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% coarse grain sand to 5mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (32.5 - 35)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% coarse grain sand to 5mm with ~30% silt and clay. The sand is angular to subangular. The fines are nonplastic to low plasticity and					

← B/W-18S screened from 15 - 40 feet.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: BW-18D

Sheet 3 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35			toughness, and do not react to HCl.					
		SM	<b>Silty Sand (35 - 36.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% coarse grain sand to 5mm with ~20% silt and clay. The sand is angular to subangular. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (36.5 - 49)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% medium to fine sand with maximum grain size of 1mm. The sand is angular to subangular. The fines have moderate to high plasticity, is very tough, and do not react to HCl.					
40								
45								
50		SP	<b>Poorly Graded Sand (49 - 57)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 35mm, ~20% coarse grain sand and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 4 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55				B/W-18D@50.5-55.5				
		SM	<b>Silty Sand (57 - 62.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm, and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
60								
		CL	<b>Sandy Lean Clay (62.5 - 68.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~35% medium to fine sand with maximum grain size ~ 2mm. The sand is angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.					
65								
		SP	<b>Poorly Graded Sand (68.5 - 71)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
70								
		SM	<b>Silty Sand (71 - 74)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~ 30% silt					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

























Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 5 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.	B/W-18D@70.5-75.5				
75		SP	<b>Poorly Graded Sand (74 - 75)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~15% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (75 - 77)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% coarse grain sand to 3mm with ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (77 - 78.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
80		SM	<b>Silty Sand (78.5 - 82.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% coarse grain sand to 5mm with ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (82.5 - 85)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
85			<b>No Recovery (85 - 96)</b> Attempted to recover fallen out core with a trapper bit.					
90								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 6 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95								
		CL	<b>Sandy Lean Clay (96 - 104)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 10 mm and ~40% medium to fine grain sand. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.					
100								
		SP	<b>Poorly Graded Sand (104 - 105.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
105		CL	<b>Sandy Lean Clay (105.5 - 106.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 10 mm and ~40% medium to fine grain sand. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.					
		SP						
		CL	<b>Poorly Graded Sand (106.5 - 107)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with maximum grain size of 1 mm and ~15% silt and clay content. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
110			<b>Lean Clay (107 - 116)</b> Dry, very dense, no odor. Primarily silt and clay with					

B/W-18D@100.5-105.5

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 7 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115			~40% medium to fine grained sand with a maximum grain size of 1mm. The sand is angular to subangular. The fines have moderate to high plasticity, is very tough, and do not react to HCl.					
		SW	<b>Well-Graded Sand (116 - 124)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand 2mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
120				B/W-18D@118-123				
		SM	<b>Silty Sand (124 - 126)</b> Moist, very dense, no odor. Primarily medium to fine sand with a maximum grain size 1mm and ~30% silt and clay content. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
125		SP	<b>Poorly Graded Sand with Silt (126 - 130)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 5 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

B/W-18I screened from 116 - 136 feet.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 8 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130		SM	<b>Silty Sand (130 - 130.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 5 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SP						
		SM						
		SC	<b>Poorly Graded Sand with Silt (130.5 - 131)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
			<b>Silty Sand (131 - 132)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
135		SP	<b>Clayey Sand (132 - 135.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SM	<b>Poorly Graded Sand (135.5 - 136)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
			<b>Silty Sand (136 - 143)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm, ~10% coarse grain sand and ~20% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
140								
		SC	<b>Clayey Sand (143 - 145)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
145		SM	<b>Silty Sand (145 - 147)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (147 - 149)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~25% silt and clay. The gravel is angular to subangular and the sand					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 9 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150		SM	<b>Silty Sand (149 - 151)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-18D@149-154				
		SC	<b>Clayey Sand (151 - 159)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
155		SC	<b>Clayey Sand (159 - 161)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
160		SW	<b>Well-Graded Sand (161 - 164)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
165		SM	<b>Silty Sand (164 - 165)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW	<b>Well-Graded Sand with Gravel (165 - 175)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

B/W-18D screened from 154.75 to 174.75 feet.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 10 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170				B/W-18D@167-172				
175		SC	<b>Clayey Sand (175 - 180)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
180		SP	<b>Poorly Graded Sand (180 - 183)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
185		SC	<b>Clayey Sand (183 - 188.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 11 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
190		SM SC	<p><b>Silty Sand (188.5 - 189)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p> <p><b>Clayey Sand (189 - 197)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.</p>					
195								
200		SM	<p><b>Silty Sand (197 - 204)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.</p>					
205		SM	<p><b>Silty Sand (204 - 212.5)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with a maximum grain size of 2 mm and ~35% silt and clay content. The sand is subangular to</p>					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 12 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
210			subrounded. The fines are nonplastic, and do not react to HCl.					
215		SM	<b>Silty Sand (212.5 - 216.5)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with a maximum grain size of 1 mm and ~40% silt and clay content. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (216.5 - 217.5)</b> Saturated, dense, no odor. Primarily fine sand with ~30% medium grain sand to 1 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
220		SM	<b>Silty Sand (217.5 - 226)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 13 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
225								
		SM	<b>Silty Sand (226 - 230)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
230		SC	<b>Clayey Sand (230 - 233)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand (233 - 237)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
235								
		SM	<b>Silty Sand (237 - 240)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
240		SW	<b>Well-Graded Sand with Silt (240 - 245)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025



Soil Boring: ☐

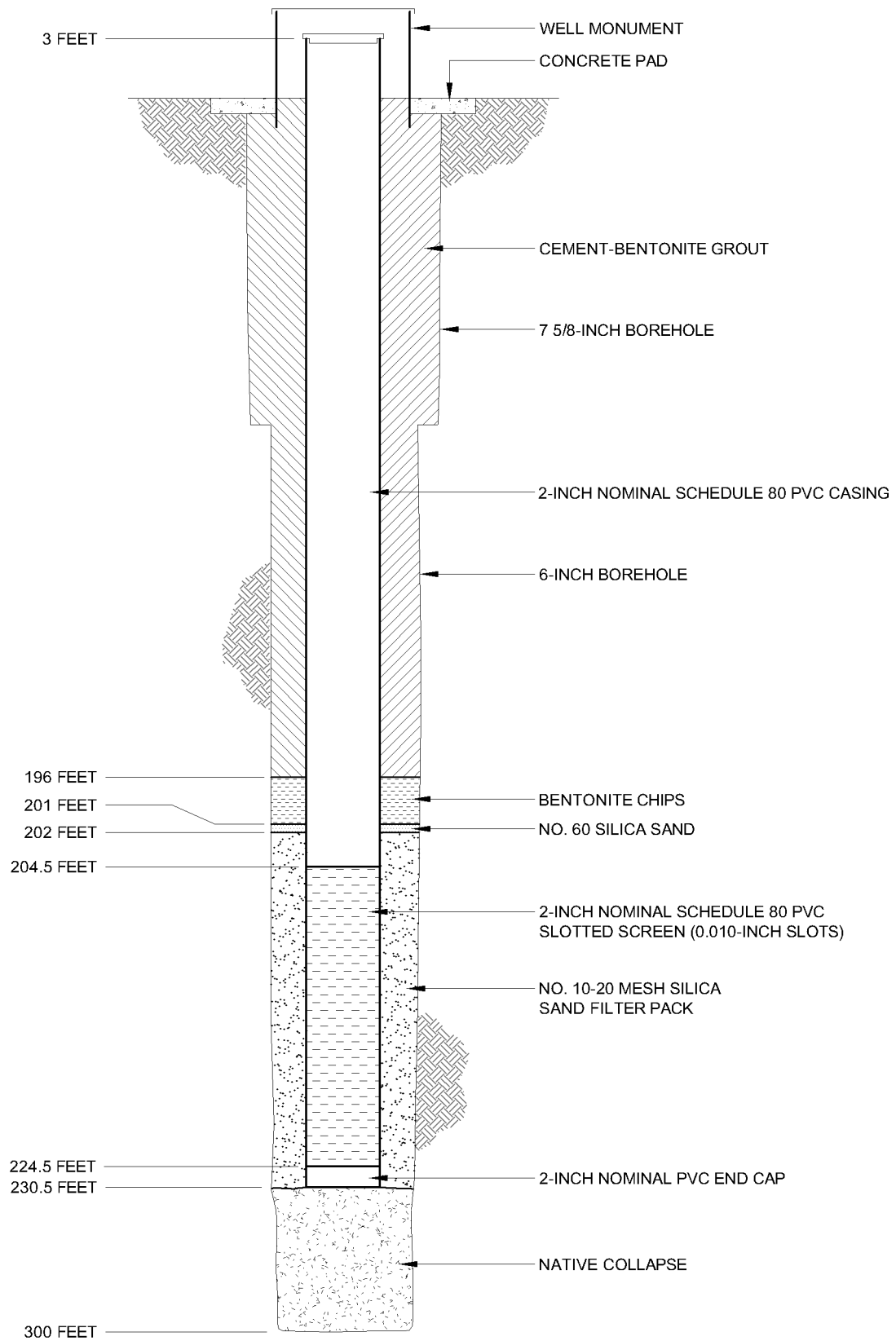
Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-18D

Sheet 14 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
245			Bottom of Borehole at 245 feet below ground surface.					



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-19D  
Construction Details**

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 1 of 16

<b>Boring Location:</b> On Mason Pass road, 1 mile north of the Mason Pass - Luzier Lane junction		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 5/30/07	<b>Date Finished:</b> 6/13/07
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 300 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> C. Gardner, C. Strauss, and R. Banda		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SW-SM	<b>Well-Graded Sand with Silt and Gravel (0 - 13.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~20% gravel to 25 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl. Some gravel up to 6" which are flat and elongated.					<p>Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.</p> <p>Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.</p> <p>Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.</p> <p>All depths are below land surface unless stated otherwise.</p> <p><b>WELL DESIGN for B/W-19D:</b>  PVC Stickup: feet  Cement - Bentonite Grout: 0 - 196 feet  Bentonite Chips: 196 - 201 feet  No. 60 Silica Sand: 201 - 202 feet  #10-20 Silica Sand Filter Pack: 202 - 230.5 feet  2-inch Nominal Schedule 80 PVC 0.010  Slotted Screen: 204.5 - 224.5 feet  Native Collapse: 270 - 300 feet  Additional Bentonite Fill: 230.5 - 270 feet</p> <p>Number of wells at this location: 3  Screen intervals for paired wells are labeled at the installed depths.</p>
10		SM	<b>Silty Sand (13.5 - 15)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a weak to					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 2 of 16

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
20		SM	<p>strong reaction to HCl. Some flat, elongated gravel up to 4-inches.</p> <p><b>Silty Sand with Gravel (15 - 22)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to 50 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.</p>					
25		SC	<p><b>Clayey Sand (22 - 23)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity with low toughness, and have a strong reaction to HCl.</p>					
		SM	<p><b>Silty Sand with Gravel (23 - 25)</b> Dry, dense, no odor. Primarily coarse to fine sand with ~20% gravel to 40 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a strong reaction to HCl.</p>					
		SC	<p><b>Clayey Sand (25 - 28)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.</p>					
30		SW-SM	<p><b>Well-Graded Sand with Silt and Gravel (28 - 32.5)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~30% gravel to 60 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to strong reaction to HCl. Some of the gravel are elongated.</p>					
		SP	<p><b>Poorly Graded Sand (32.5 - 34)</b> Dry, very dense, no odor. Primarily medium sand with ~10% gravel to 15 mm and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet **3** of **16**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35		GW-GM	<b>Well-Graded Gravel with Silt and Sand (34 - 35)</b> Dry, very dense, no odor. Primarily gravel to 60 mm, ~35% coarse to medium sand and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW-SM						
		SM	<b>Well-Graded Sand with Silt and Gravel (35 - 36)</b> Dry, very dense, no odor. Primarily medium to coarse sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
			<b>Silty Sand with Gravel (36 - 39)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
40		SW-SM	<b>Well-Graded Sand with Silt and Gravel (39 - 44.5)</b> Dry, very dense, no odor. Primarily medium sand with ~15% gravel to 15 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.					
45		SM	<b>Silty Sand (44.5 - 45)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (45 - 47.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (47.5 - 51.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 25 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have no reaction to strong reaction to HCl.					
50		SW-SM	<b>Well-Graded Sand with Silt (51.5 - 54.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have no reaction to strong					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 4 of 16

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			reaction to HCl.					
55		SC	<b>Clayey Sand (54.5 - 55)</b> Dry,very dense, no odor. Primarily coarse to fine sand with ~10% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.					
		SW-SM						
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (55 - 56)</b> Dry,very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
			<b>Well-Graded Sand with Silt (56 - 62)</b> Dry,very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and have a strong reaction to HCl.					
60								
		SP-SM	<b>Poorly Graded Sand with Silt (62 - 63.5)</b> Dry,very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
		SP-SM	<b>Poorly Graded Sand with Silt (63.5 - 65)</b> Dry,very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~15 mm and 35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.					
65		SW-SM	<b>Well-Graded Sand with Silt and Gravel (65 - 75)</b> Dry,dense, no odor. Primarily coarse to fine sand with ~15% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl. Zone has 6-inch interbedded sand with silt lenses that have ~15% gravel to 10 mm with ~10% coarse grained sand and ~65% medium to fine grained sand at ~66-66.5 fbg and ~69.5-70.5 fbg.					
70								



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 5 of 16

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75		SP-SM	<b>Poorly Graded Sand with Silt (75 - 76.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 30 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SP-SM	<b>Poorly Graded Sand with Silt (76.5 - 79)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SC	<b>Clayey Sand (79 - 79.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with grain size up to 5 mm and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, and have a strong reaction to HCl.					
80		SW-SM	<b>Well-Graded Sand with Silt and Gravel (79.5 - 81)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~15% gravel to 10 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW	<b>Well-graded Sand with Silt (81 - 83)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Well-Graded Sand (83 - 84.5)</b> Dry, very dense, no odor. Primarily medium to coarse sand with ~10% gravel to 10 mm and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
85		SW	<b>Silty Sand (84.5 - 86)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
		SC	<b>Well-Graded Sand (86 - 88.5)</b> Dry to moist, very dense, no odor. Primarily medium to coarse sand with ~10% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.					
		SM	<b>Clayey Sand (88.5 - 89)</b> Dry, very dense, no odor. Primarily medium to fine sand with grain size up to 5 mm and ~35% silt and clay. The sand is angular to subangular. The fines have medium plasticity and toughness, and have a weak reaction to HCl.					
90			<b>Silty Sand (89 - 92.5)</b>					

← B/W-19S screened from 90 to 110 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 6 of 16

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95			Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have no reaction to a weak reaction to HCl.					
		SM	<b>Silty Sand (92.5 - 93)</b>					
		SM	Moist to saturated, very dense, no odor. Primarily coarse to fine sand with ~10% gravel to 25 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW	<b>Silty Sand (93 - 95)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.					
		SM	<b>Well-Graded Sand with Gravel (95 - 97)</b> Saturated, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 10 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		GW	<b>Silty Sand with Gravel (97 - 98)</b> Moist, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
100		SM	<b>Well-Graded Gravel with Sand (98 - 100)</b> Saturated, very dense, no odor. Primarily gravel to ~30 mm, ~40% coarse to medium sand and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SW-SM	<b>Silty Sand (100 - 102)</b> Saturated, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
			<b>Well-Graded Sand with Silt (102 - 104.5)</b> Saturated, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
105		SC						
		SW-SM	<b>Clayey Sand (104.5 - 105)</b> Saturated, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 25 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.					
			<b>Well-Graded Sand with Silt and Gravel (105 - 109.5)</b> Saturated, very dense, no odor. Primarily medium to coarse sand with ~20% gravel to 30 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
110		SM	<b>Silty Sand with Gravel (109.5 - 115)</b> Moist, very dense, no odor. Primarily medium to fine					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-19D

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115			sand with ~20% gravel to 25 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (115 - 122)</b> Saturated, dense, no odor. Primarily medium to coarse sand with ~15% gravel to 25 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl. There are some gravel up to 60 mm.					
120				B/W-19D@117-122				
		SM	<b>Silty Sand (122 - 125)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subrounded. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
125		SM	<b>Silty Sand with Gravel (125 - 127)</b> Moist, very dense, no odor. Primarily coarse to fine sand with ~15% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
		SM	<b>Silty Sand (127 - 134.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 25 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak to strong reaction to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 8 of 16

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130								
135		SM	<b>Silty Sand (134.5 - 135)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand is angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (135 - 140)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
140		SM	<b>Silty Sand (140 - 145)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have no reaction to strong reaction to HCl.					
145		SW-SM	<b>Well-Graded Sand with Silt (145 - 148)</b> Saturated, very dense, no odor. Primarily medium to coarse sand with ~10% gravel to 25 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.	B/W-19D@145-150				

B/W-19I screened from 140 to 160 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 9 of 16

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150		SM	<b>Silty Sand (148 - 150)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
		SC	<b>Clayey Sand (150 - 157)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, and have a weak to strong reaction to HCl.					
155								
		SM	<b>Silty Sand with Gravel (157 - 165.5)</b> Saturated, dense, no odor. Primarily medium to coarse sand with ~15% gravel to 30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl. Zone has some thinly interbedded sand with silt layers.					
160								
165		SW	<b>Well-Graded Sand (165.5 - 168)</b> Saturated, dense, no odor. Primarily medium sand with ~10% gravel to 20 mm and ~10% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a weak to strong reaction to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet **10** of **16**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170		SM	<b>Silty Sand (168 - 170)</b> Moist, very dense, no odor. Primarily medium sand with ~5% gravel to 20 mm and ~20% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.	B/W-19D@165-170				
		SW-SM	<b>Well-Graded Sand with Silt (170 - 175)</b> Saturated, dense, no odor. Primarily medium sand with ~10% gravel to 50 mm and ~10% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
175		CL	<b>Sandy Lean Clay (175 - 181)</b> Dry, very dense, no odor. Primarily silt and clay with ~35% medium to fine sand with ~10% gravel up to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, have the 7.5 YR 5/4 brown color with some gray interbeds, and have no reaction to strong reaction to HCl.					
180		SC	<b>Clayey Sand (181 - 184)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~35% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines have medium plasticity and toughness, and have a strong reaction to HCl.					
185		SM	<b>Silty Sand (184 - 191)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 50 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have a weak to strong reaction to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
190								
		SC	<b>Clayey Sand (191 - 193)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
195		CL	<b>Sandy Lean Clay (193 - 200)</b> Dry, very dense, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, have the 7.5 YR 5/4 brown color, and have no reaction to strong reaction to HCl.					
200		SC	<b>Clayey Sand (200 - 205)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
205			<b>Clayey Sand (205 - 207.5)</b>					

← B/W-19D screened from 204.5 to 224.5 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 12 of 16

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SC	Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have no reaction to strong reaction to HCl.					
		SC	<b>Clayey Sand (207.5 - 210)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.					
210		SM	<b>Silty Sand with Gravel (210 - 211.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand (211.5 - 215)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.					
215		SM	<b>Silty Sand with Gravel (215 - 217)</b> Dry to moist with some saturated seams, dense, no odor. Primarily medium to fine sand with ~20% gravel to 30 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand with Gravel (217 - 222)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have no reaction to a weak reaction to HCl.					
220		SM	<b>Silty Sand with Gravel (222 - 222.5)</b> Saturated, dense, no odor. Primarily medium to coarse sand with ~15% gravel to 50 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (222.5 - 223.5)</b> Moist, very dense, no odor. Primarily medium to fine					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet **13** of **16**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
225		CL	sand with ~10% gravel to 10 mm and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, and have no reaction to strong reaction to HCl.					
		SM	<b>Silty Sand (223.5 - 224.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
		SM	<b>Sandy Lean Clay (224.5 - 225)</b> Dry, very dense, no odor. Primarily silt and clay with ~30% medium to fine sand with ~5% gravel to 10 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, have 7.5 YR 5/4 brown color, and have a strong reaction to HCl.					
230			<b>Silty Sand (225 - 228)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a weak to strong reaction to HCl.					
			<b>Silty Sand (228 - 232)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with a maximum grain size of ~1 mm. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		CL						
		CL						
		SM	<b>Sandy Lean Clay (232 - 232.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% medium to fine sand with trace gravel to 10 mm. The gravel is angular to subangular and the sand is subangular to subrounded. The fines have medium plasticity and toughness, have 7.5 YR 5/4 brown color, and have a strong reaction to HCl.					
235			<b>Sandy Lean Clay (232.5 - 233.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with no gravel and a maximum grain size of ~5 mm. The gravel is angular to subangular and the sand is subangular to subrounded. The fines have medium plasticity and toughness, have 7.5 YR 5/4 brown color, and have a strong reaction to HCl.					
			<b>Silty Sand (233.5 - 239)</b> Dry, very dense, no odor. Primarily medium to fine sand with trace gravel to 10 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, have the 7.5 YR 5/4 brown, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (239 - 241)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.					
240		SM	<b>Silty Sand (241 - 252)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.					

# BORING LOG

**Project Name:** Yerington Second Step Hydrogeologic Framework Assessment

**Project Number:** 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

**Boring/Well Number:** B/W-19D

Sheet 14 of 16[illegible]

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet 15 of 16

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
265								
270								
275								
		SC	<b>Clayey Sand (277.5 - 278)</b> Dry to moist, very dense, no odor. Primarily coarse to fine sand with ~5% gravel to ~10 mm and 30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity with low toughness, have a brown color, and have a strong reaction to HCl.					
		SC	<b>Clayey Sand (278 - 284.5)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~10% gravel to 10 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, have a brown color, and have a strong reaction to HCl.					
280								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


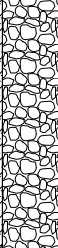






Soil Boring: ☐

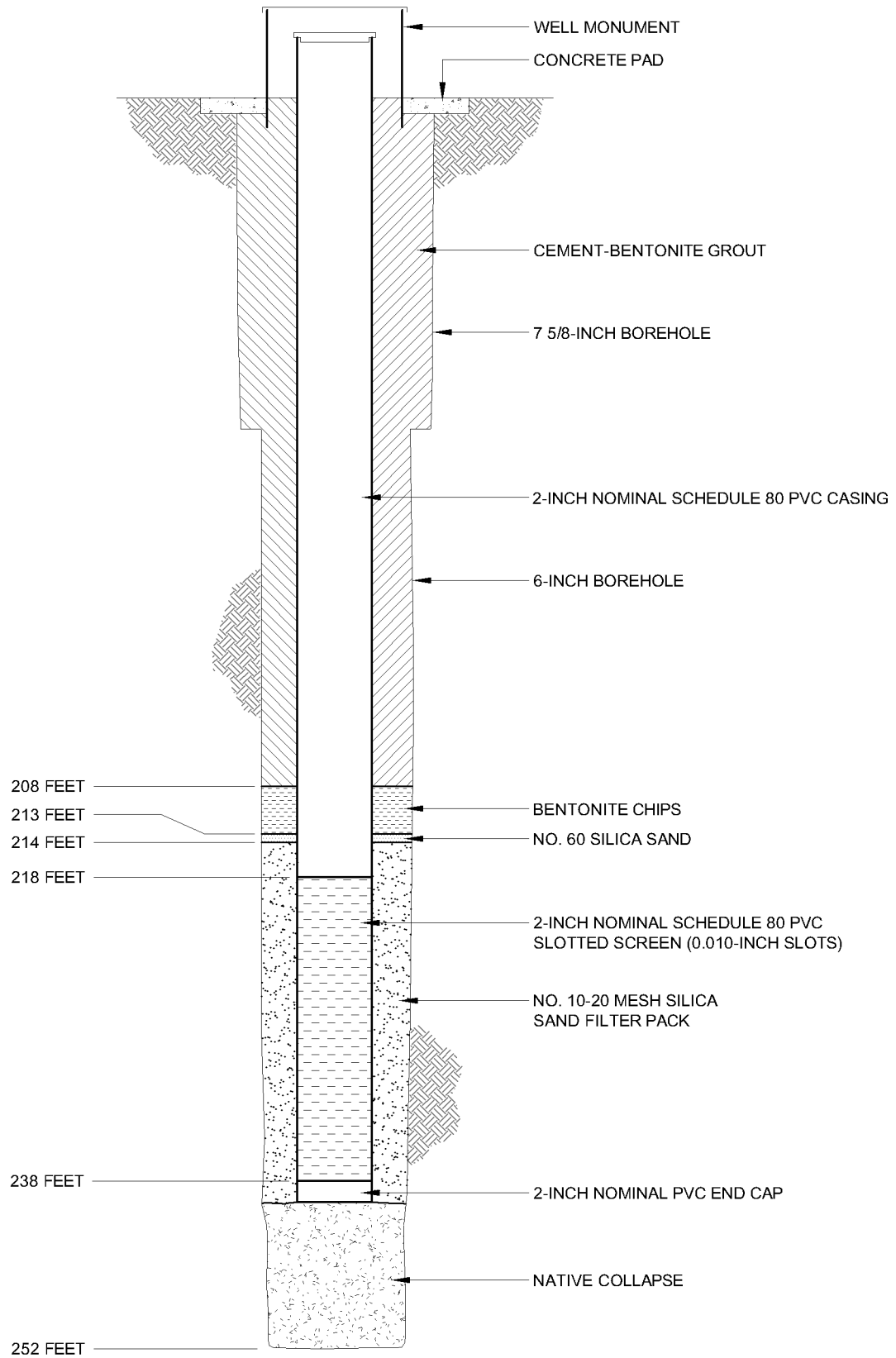
Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-19D

Sheet **16** of **16**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
285		CL SM	<p><b>Sandy Lean Clay (284.5 - 285)</b> Dry, very dense, no odor. Primarily silt and clay with ~5% gravel to 15 mm and ~35% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.</p> <p><b>Silty Sand (285 - 291)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 40 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have a brown color, and have a strong reaction to HCl.</p>					
290		CL	<p><b>Sandy Lean Clay (291 - 292.5)</b> Dry, very dense, no odor. Primarily silt and clay with ~30% medium to fine sand and ~10% gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.</p>					
295		CH	<p><b>Fat Clay with Sand (292.5 - 296)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~20% coarse sand with ~10% gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.</p>					
300		SC	<p><b>Sandy Lean Clay (296 - 300)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~10% gravel to 15 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a strong reaction to HCl.</p>					
			Bottom of Borehole at 300 feet below ground surface.					



Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-25D  
Construction Details**

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 1 of 14

<b>Boring Location:</b> South side of road, one mile west on Luzier Lane.		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 12/17/07	<b>Date Finished:</b> 1/19/08
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 252 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> C. Strauss		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SP	<b>Poorly Graded Sand (0 - 2)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
		SM	<b>Silty Sand (2 - 9)</b> Dry, loose to dense, no odor. Primarily medium to fine sand with ~5% gravel to 5mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.  WELL DESIGN for B/W-25D: PVC Stickup: feet. Cement - Bentonite Grout: 0 - 208 feet Bentonite Chips: 208 - 213 feet No. 60 Silica Sand: 213 - 214 feet #10-20 Silica Sand Filter Pack: 214 - 238 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 218 - 238 feet Native Collapse: 238 - 252 feet Additional Bentonite Fill: NA feet
5								
		SP	<b>Poorly Graded Sand (9 - 12)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Number of wells at this location: 3 Screen intervals for paired wells are labeled at the installed depths.
10								
		SC	<b>Clayey Sand (12 - 14)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (14 - 15)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% silt					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 2 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
20		SM	and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. <b>Silty Sand (15 - 18)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity and toughness, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (18 - 18.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (18.5 - 23)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
25		SC	<b>Clayey Sand (23 - 29)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
30		SW	<b>Well-Graded Sand (29 - 31)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (31 - 31.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SW						
		CL	<b>Well-Graded Sand (31.5 - 32.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to					
				B/W-25D@29.5-34.5				B/W-25S screened from 29 to 49 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet **3** of **14**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35			subrounded. The fines are nonplastic, and do not react to HCl. <b>Sandy Lean Clay (32.5 - 37)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~35% medium to fine sand with no gravel. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.		●			
		SP	<b>Poorly Graded Sand (37 - 43)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
40								
		SP	<b>Poorly Graded Sand (43 - 45)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
45								
		CL	<b>Sandy Lean Clay (45 - 47)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~40% medium to fine sand with ~5% coarse sand to 5 mm. The sand is angular to subangular. The fines have low to medium plasticity and toughness, have a light brown color, and have no reaction to a weak reaction to HCl.					
		SP	<b>Poorly Graded Sand (47 - 55)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. The sand is fining upward in section.					
50								
				B/W-25D@50-55	●●●●●●●●●●			



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025




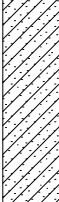



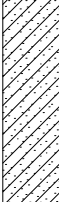





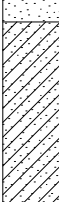

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 4 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55								
		SC	<b>Clayey Sand (55 - 57.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, have a brown color, and have no reaction to a weak reaction to HCl.					
		SP	<b>Poorly Graded Sand (57.5 - 60)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
60		SC	<b>Clayey Sand (60 - 63.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have a light brown color, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (63.5 - 68)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. The sand are fining up wards.					
		SC	<b>Clayey Sand (68 - 71)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have a medium brown color, and have no reaction to a weak reaction to HCl.					
70		SM	<b>Silty Sand (71 - 78.5)</b> Moist, very dense, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to 10 mm.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 5 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75			The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, have a light brown color, and have no reaction to a weak reaction to HCl.					
80		SW	<b>Well-Graded Sand (78.5 - 89)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
85				B/W-25D@80-85				
90		SM	<b>Silty Sand (89 - 95)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 5 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, and have no reaction to a weak reaction to HCl.					

# BORING LOG

Project Name: Yerlington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 6 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95		SC	<b>Clayey Sand (95 - 97)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, have a brown color, and have no reaction to a weak reaction to HCl.					
		SM	<b>Silty Sand (97 - 102)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with and ~5% coarse sand to 5 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, and have no reaction to a weak reaction to HCl.					
100		SW	<b>Well-Graded Sand (102 - 108.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
105		SM	<b>Silty Sand (108.5 - 110)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~10% coarse grain sand and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic,					
110								

B/W-25D@99-104

← B/W-25I screened from 102 to 122 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: BW-25D

Sheet 7 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115		SP	and do not react to HCl.					
		SM	<b>Poorly Graded Sand (110 - 111)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~10% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SP	<b>Silty Sand (111 - 113)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~5% coarse grain sand and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have no reaction to a weak reaction to HCl.					
			<b>Poorly Graded Sand (113 - 119)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15mm, ~20% coarse grain sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Sand gets finer toward top of section.					
120		CL	<b>Sandy Lean Clay (119 - 129)</b> Dry, dense, no odor. Primarily silt and clay with ~5% gravel to 10mm, ~5% coarse grain sand and ~35% medium to fine grain sand. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a weak reaction to HCl. Zone is very hard with little to no gravel or coarse sand.					
125								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 8 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130		SM	<b>Silty Sand (129 - 135.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand and ~30% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
135		SM	<b>Silty Sand (135.5 - 142.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl. Zone is mostly fine sand.					
140		SP	<b>Poorly Graded Sand (142.5 - 146)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~10% coarse grain sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-25D@80-85				
145		SM	<b>Silty Sand (146 - 149)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% coarse grain sand to 5mm and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 9 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150		SM	<b>Silty Sand (149 - 155)</b> Dry to moist, dense, no odor. Primarily fine sand with ~20% medium grain sand to 2mm and ~40% silt and clay. The sand is angular to subangular. The fines are nonplastic, and do not react to HCl.					
155		CL	<b>Clayey Sand (155 - 157)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~5% coarse grain sand and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have a weak reaction to HCl.					
		CL	<b>Sandy Lean Clay (157 - 158)</b> Dry, very dense, no odor. Primarily silt and clay with ~45% medium to fine grain sand to 2mm. The sand is angular to subangular. The fines have moderate to high plasticity, are moderately tough, and have no reaction to a weak reaction to HCl.					
160		SC	<b>Clayey Sand (158 - 162.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~10% coarse grain sand and ~40% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have a weak reaction to HCl.					
		CL	<b>Lean Clay (162.5 - 165)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% medium to fine grain sand to 2mm. The sand is angular to subangular. The fines have medium plasticity and toughness, and have a weak reaction to HCl.					
165		SP	<b>Poorly Graded Sand (165 - 166)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5mm, ~10% coarse grain sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Lean Clay (166 - 169)</b>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet **10** of **14**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170		SW	<p>Moist, very dense, no odor. Primarily silt and clay with ~5% coarse grain sand to 3mm and ~45% medium to fine grain sand. The sand is angular to subangular. The fines are nonplastic to low plasticity and toughness, have a brown-gray color, and have no reaction to a weak reaction to HCl.</p> <p><b>Well-Graded Sand (169 - 172)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm, ~10% coarse grain sand and ~ 15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Zone has more fines and finer sand are toward top of section.</p>					
175		SC	<p><b>Clayey Sand (172 - 175)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10mm. ~10% coarse grain sand and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, have a light brown color, and do not react to HCl.</p>					
180		CL	<p><b>Lean Clay (175 - 177)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% medium to fine grained sand with a maximum grain size of 1 mm. The sand is angular to subangular. The fines have moderate to high plasticity, are moderately tough, have a brown color, and do not react to HCl.</p>					
		SM	<p><b>Silty Sand (177 - 181)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.</p>					
		SM	<p><b>Silty Sand (181 - 183)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
185		CL	<p><b>Lean Clay (183 - 187.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~35% medium to fine grained sand. The sand is angular to subangular. The fines have moderate to high plasticity, are moderately tough, have a brown color, and do not react to HCl.</p>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 11 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
190		SM	<b>Silty Sand (187.5 - 195)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
195		CL	<b>Lean Clay (195 - 196)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 10 mm and ~35% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, have a brown color, and do not react to HCl.					
		SW	<b>Well-Graded Sand (196 - 200)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Zone coarsens upwater and the percent fines goes to approximately 20 toward the bottom.					
200		SC	<b>Clayey Sand (200 - 205)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
205			<b>Clayey Sand (205 - 207)</b>					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 12 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SC	Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		CL	<b>Lean Clay (207 - 213.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~40% medium to fine grained sand with a maximum grain size of 1 mm. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
210								
		SM	<b>Silty Sand (213.5 - 217)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
215								
		SC	<b>Clayey Sand (217 - 222)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 2 mm and ~35% silt and clay. The sand is angular to subangular. The fines are nonplastic, and do not react to HCl.					
220								
		SP	<b>Poorly Graded Sand (222 - 222.5)</b> Moist, dense, no odor. Primarily medium to fine sand with a maximum grain size of 1 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (222.5 - 227.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~40% silt					

← B/W-25D screened from 218 to 238 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 13 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
225			and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have no reaction to a weak reaction to HCl.					
		SC	<b>Clayey Sand (227.5 - 228.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SW	<b>Well-Graded Sand (228.5 - 231)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have no reaction to a weak reaction to HCl. Zone has more fines toward the bottom of the section.					
230		SC	<b>Clayey Sand (231 - 235)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
235		CL	<b>Lean Clay (235 - 245)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% medium to fine grained sand with a maximum grain size of 0.5 mm. The sand and gravel are angular to subangular. The fines are highly plastic, very tough, and do not react to HCl. Zone has weaker strength toward the top of the section.					
240								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-25D

Sheet 14 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
245		SM	<b>Silty Sand (245 - 245.5)</b> Moist, dense, no odor. Primarily medium to fine sand with a maximum grain size of 2 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL						
250			<b>Lean Clay (245.5 - 252)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~30% fine sand with a maximum grain size of 0.5 mm. The sand is angular to subangular. The fines have moderate to high plasticity, are moderately tough, and do not react to HCl.					
			Bottom of Borehole at 252 feet below ground surface.					

## BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 1 of 14

<b>Boring Location:</b> 0.2 mi west on Luzier Ln., turn right at fence end, 0.5 mi. north right side of dirt		<b>North:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 1/19/08	<b>Date Finished:</b> 2/6/08
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 250 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> C. Strauss		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SM	<b>Silty Sand (0 - 4)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10mm and ~20% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
5		SP	<b>Poorly Graded Sand (4 - 6)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5mm and ~10% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
		SW	<b>Well-Graded Sand (6 - 8)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
10		SM	<b>Silty Sand (8 - 11)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					All depths are below land surface unless stated otherwise.
		SM	<b>Silty Sand with Gravel (11 - 16)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~20% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					WELL DESIGN for B/W-27D: PVC Stickup: feet Cement - Bentonite Grout: 0-218 feet Bentonite Chips: 218-223 feet No. 60 Silica Sand: 223-225 feet #10-20 Silica Sand Filter Pack: 225-250 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 230-250 feet Native Collapse: NA feet Additional Bentonite Fill: NA feet
								Number of wells at this location: 2 Screen intervals for paired wells are labeled at the installed depths.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 2 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
20		SC	<b>Clayey Sand (16 - 17)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SW	<b>Well-Graded Sand (17 - 20)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~10% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (20 - 21)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (21 - 23)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. There are some small lenses of higher percent fines located throughout section.					
25		SC	<b>Clayey Sand (23 - 27.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (27.5 - 30)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
30		SW	<b>Well-Graded Sand (30 - 36)</b> Saturated, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-27D@30-35				

← B/W-27S screened from 16 to 36 feet

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: BW-27D

Sheet 3 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35								
		CL	<b>Clayey Sand (36 - 40)</b> Moist, very dense, no odor. Primarily silt and clay with ~50% medium to fine grain sand to 1mm. The sand is angular to subangular. The fines have high plasticity, have a brown color, and do not react to HCl.					
40		SM	<b>Silty Sand (40 - 44)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% clay and silt. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (44 - 47)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% clay and silt. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
45		SW	<b>Well-Graded Sand (47 - 48.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (48.5 - 49.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~45% medium to fine grained sand with a maximum grain size of 2mm. The sand is angular to subangular. The fines have medium plasticity and toughness, have a brown and rust color, and do not react to HCl.					
50		CL						
		SW	<b>Clayey Gravel (49.5 - 50)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~20% clay and silt. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have no reaction to a weak reaction to HCl.					
				BW-27D@50-55				

# BORING LOG

**Project Name:** Yerington Second Step Hydrogeologic Framework Assessment

**Project Number:** 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

**Boring/Well Number:** B/W-27D

Sheet 4 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55			<b>Well-Graded Sand (50 - 56.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~10% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
		SC	<b>Clayey Sand with Gravel (56.5 - 57.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~25% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
60		SW	<b>Well-Graded Sand (57.5 - 65)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
65		SC	<b>Clayey Sand with Gravel (65 - 67.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~25% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
70		SW-SM	<b>Well-Graded Sand with Silt (67.5 - 73.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


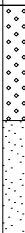
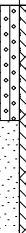
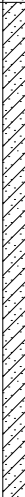


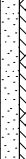
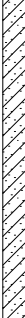

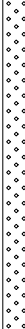

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: BW-27D

Sheet 5 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75		SP	<b>Poorly Graded Sand (73.5 - 75)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 5 mm and ~15% clay and silt. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.	BW-27D@70-75				
80		SC	<b>Clayey Sand (75 - 81)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (81 - 83)</b> Moist, dense, no odor. Primarily medium to fine sand with a maximum grain size of 2 mm and ~35% clay and silt. The sand is angular to subangular. The fines are nonplastic to low plasticity and toughness, have a gray color with tan banding, and do not react to HCl.					
85		SC	<b>Clayey Sand (83 - 87)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
90		SW-SM	<b>Well-Graded Sand with Silt (87 - 93)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. There are a few more fines toward top of section and ~20% gravel toward 92-93 foot section.					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 6 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95		SC SP-SM	<b>Clayey Sand (93 - 93.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% clay and silt. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
100		SP-SM	<b>Poorly Graded Sand with Silt (93.5 - 100)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-27D@95-100				
105		CL	<b>Poorly Graded Sand with Silt (100 - 102.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 5 mm and ~15% clay and silt. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Lean Clay (102.5 - 104.5)</b> Moist, very dense, no odor. Primarily silt and clay with ~15% medium grain sand to 1mm and ~30% fine grain sand. The sand is angular to subangular. The fines have medium plasticity and toughness, and have no reaction to a weak reaction to HCl.					
			<b>Silty Sand (104.5 - 110)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
110								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 7 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115		SW-SM	<b>Well-Graded Sand with Silt (110 - 116)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (116 - 117.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
120		SW-SM	<b>Well-Graded Sand with Silt (117.5 - 121)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (121 - 125)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
125		SP-SM	<b>Well-Graded Sand with Silt (125 - 131)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

**Project Name:** Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

**Boring/Well Number:** B/W-27D

Sheet 8 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130								
		SW	<b>Well-Graded Sand (131 - 132.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Lean Clay with Sand (132.5 - 135)</b> Moist, very dense, no odor. Primarily silt and clay with ~45% medium to fine grain sand to ~1mm. The sand is angular to subangular. The fines have medium plasticity and toughness, have a brown color, and do not react to HCl.					
135		SW-SM	<b>Well-Graded Sand with Silt (135 - 145)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. There is more gravel (~15% to 20%) in the 142-145 foot section.					
140								
				B/W-27D@140-145				
145		SC	<b>Clayey Sand with Gravel (145 - 149)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~20% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 9 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150		SP	<b>Poorly Graded Sand (149 - 151.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% coarse grain sand to 5mm and ~10% clay and silt. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand with Gravel (151.5 - 155)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~30% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
155		SM	<b>Silty Sand (155 - 160)</b> Moist to saturated, dense, no odor. Primarily fine sand with ~10% medium grain sand to 1mm and ~45% clay and silt. The sand is angular to subangular. The fines are nonplastic to low plasticity and toughness, have a brownish gray color, and do not react to HCl.					
160		SM	<b>Silty Sand (160 - 162.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% clay and silt. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (162.5 - 164.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm ~4% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
165		SP-SM	<b>Poorly Graded Sand with Silt (164.5 - 170)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 10 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170		CL	<b>Sandy Lean Clay (170 - 179)</b> Moist, very dense, no odor. Primarily silt and clay with ~10% medium grain sand to ~1mm and ~35% fine grain sand. The sand is angular to subangular. The fines have high plasticity, have a brown color, and do not react to HCl.	B/W-27D@166-171				
175								
180		SM	<b>Silty Sand (179 - 184.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 5mm and ~40% clay and silt. The sand is angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.	B/W-27D@180-185				
185		CL	<b>Lean Clay with Sand (184.5 - 186)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~50% medium to fine grain sand with a maximum grain size of 2 mm. The sand is angular to subangular. The fines have moderate to high plasticity, are moderately tough, have a light brown color, and do					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 11 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
190		SW-SM	<p>not react to HCl.</p> <p><b>Well-Graded Sand with Silt (186 - 190)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
		CL	<p><b>Lean Clay (190 - 192)</b> Moist, very dense, no odor. Primarily silt and clay with ~50% medium to fine grain sand to 1 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, have a brown color, and do not react to HCl.</p>					
		SC	<p><b>Clayey Sand (192 - 197)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
		SC	<p><b>Clayey Sand (197 - 201)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
		SC	<p><b>Clayey Sand (201 - 204)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~40% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.</p>					
200		CL	<p><b>Lean Clay (204 - 211)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~15% medium grain sand to 1mm and ~35% fine grain sand. The sand is angular to subangular.</p>					
205								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 12 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
210			The fines have medium plasticity and toughness, and do not react to HCl.					
215		SP-SM	<b>Poorly Graded Sand with Silt (211 - 217.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
220		SW	<b>Well-Graded Sand with Gravel (217.5 - 220)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~10% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SP-SM	<b>Poorly Graded Sand with Silt (220 - 222)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Lean Clay with Sand (222 - 222.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~50% medium to fine grain sand to 2 mm. The sand is angular to subangular. The fines have moderate to high plasticity, are moderately tough, and do not react to HCl.					
		SM	<b>Silty Sand (222.5 - 225)</b> Moist, dense, no odor. Primarily medium to fine sand					

B/W-27D@215-220

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 13 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
225		SW-SM	<p>with ~5% gravel to 5 mm and ~20% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p> <p><b>Well-Graded Sand with Silt (225 - 233)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
230								
		SC	<p><b>Clayey Sand (233 - 235)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~35% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
235		SW	<p><b>Well-Graded Sand (235 - 246)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~10% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
240								
				B/W-27D@240-245				

B/W-27D screened from 230 to 250 feet



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


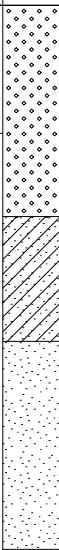
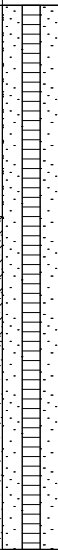
Soil Boring: ☐

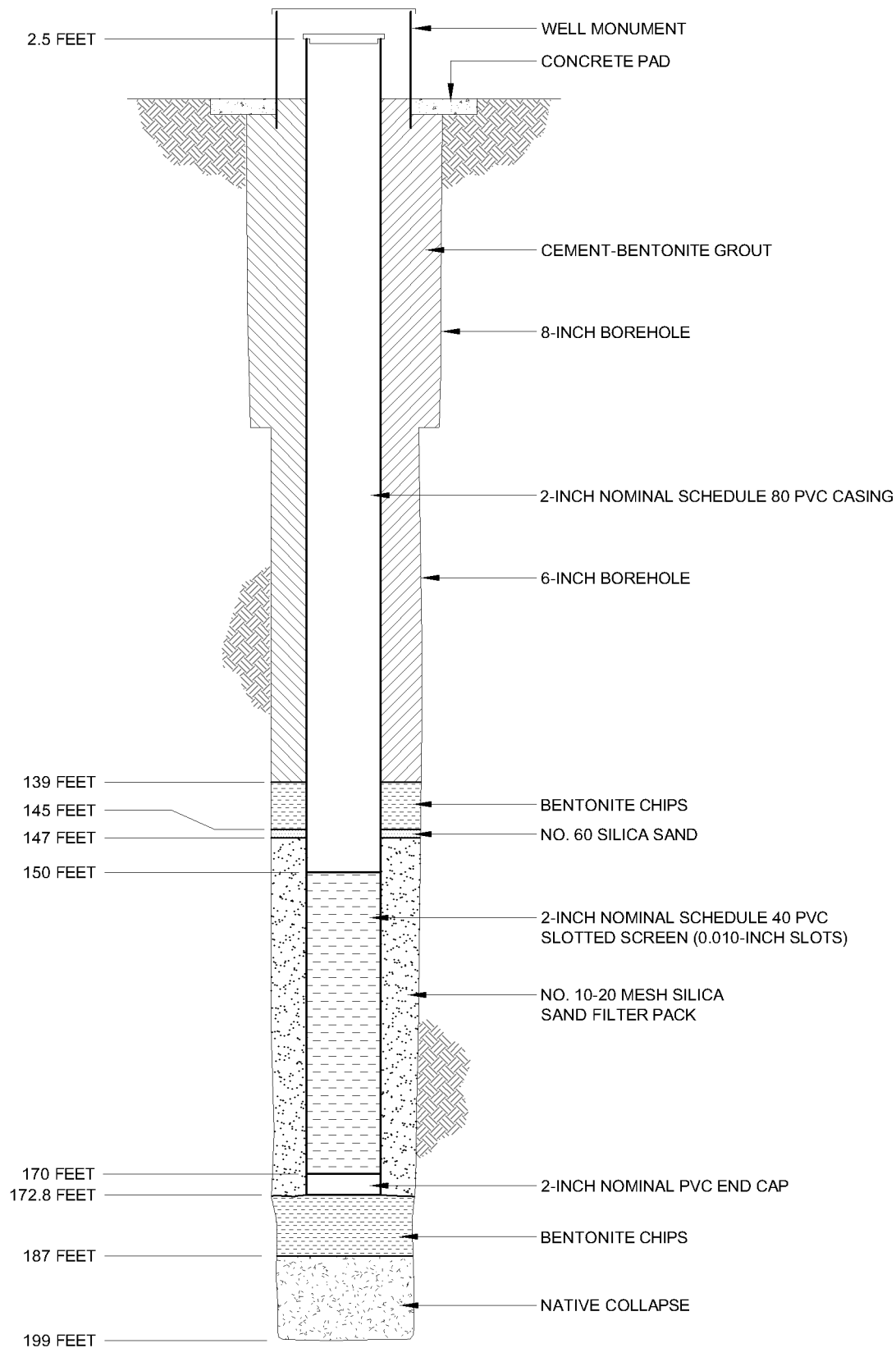
Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-27D

Sheet 14 of 14

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
245								
		SC	<b>Clayey Sand (246 - 247.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SP	<b>Poorly Graded Sand (247.5 - 250)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~10% clay and silt. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
250			Bottom of Borehole at 250 feet below ground surface.					



NOT TO SCALE



Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-28D**  
**Construction Details**

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 1 of 11

<b>Boring Location:</b> North side of road, one mile west on Amanett Way		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 6/15/07	<b>Date Finished:</b> 6/27/07
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 199 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> C. Gardner, P. Spillers and C. Strauss		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SP	<b>Poorly Graded Sand with Gravel (0 - 1)</b> Dry, loose, no odor. Primarily medium to coarse sand with ~15% gravel up to 100 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl. Zone has a few 100 mm pieces of granite at surface.					<p>Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.</p> <p>Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.</p> <p>Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.</p> <p>All depths are below land surface unless stated otherwise.</p> <p><b>WELL DESIGN for B/W-28D:</b>  PVC Stickup: feet.  Cement - Bentonite Grout: 0 - 139 feet  Bentonite Chips: 139 - 145 feet  No. 60 Silica Sand: 145 - 147 feet  #10-20 Silica Sand Filter Pack: 147 - 172.8 feet  2-inch Nominal Schedule 80 PVC 0.010  Slotted Screen: 150 - 170 feet  Native Collapse: 187 - 199 feet  Additional Bentonite Fill: 172.8 - 187 feet</p> <p>Number of wells at this location: 3  Screen intervals for paired wells are labeled at the installed depths.</p>
		SP	<b>Poorly Graded Sand (1 - 7.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SP	<b>Poorly Graded Sand with Gravel (7.5 - 9)</b> Dry, loose, no odor. Primarily coarse to fine sand with ~15% gravel to 50 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (9 - 10)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% coarse sand and gravel to 5 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (10 - 13.5)</b> Dry, loose, no odor. Primarily coarse to fine sand with ~20% gravel to 30 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak to strong reaction to HCl.					
		SP-SM	<b>Poorly Graded Sand with Silt (13.5 - 15)</b> Dry, loose, no odor. Primarily medium to fine sand with ~5% gravel to 25 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic,					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 2 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
20		SP-SM	and do not react to HCl. <b>Poorly Graded Sand with Silt (15 - 17.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~10% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (17.5 - 20)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
		SP	<b>Poorly Graded Sand (20 - 23)</b> Dry, loose, no odor. Primarily medium to fine sand with ~25% gravel to 80 mm and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
25		SP-SM	<b>Poorly Graded Sand with Silt and Gravel (23 - 25)</b> Dry, loose, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (25 - 29.5)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
30		SM	<b>Silty Sand (29.5 - 30.5)</b> Dry, dense, no odor. Primarily medium to fine sand with a maximum grain size of 1 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (30.5 - 32)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 25 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW	<b>Well-Graded Sand (32 - 34)</b> Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand up to 4 mm and ~10% silt and clay. The sand is subangular to subrounded.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 3 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35		SM	<p>The fines are nonplastic, and do not react to HCl.</p> <p><b>Silty Sand with Gravel (34 - 38.5)</b>            Dry to moist, dense, no odor. Primarily medium to coarse sand with ~15% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a weak reaction to HCl.</p>					
40		SC	<p><b>Clayey Sand (38.5 - 39)</b>            Dry, dense, no odor. Primarily medium to fine sand with trace coarse sand to 4 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, and do not react to HCl.</p>					
		SM	<p><b>Silty Sand with Gravel (39 - 49)</b>            Dry to moist, dense, no odor. Primarily medium to coarse sand with ~15% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl. Zone is dry from 38-44.5 feet, moist from 44.5-48.5 feet, and saturated at 48.5 feet.</p>					
45								
50		SP	<p><b>Poorly Graded Sand (49 - 51.5)</b>            Saturated, dense, no odor. Primarily medium to coarse sand with ~10% gravel to 15 m and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>					
			<p><b>No Recovery (51.5 - 55)</b>            Assumed to be same as 49-51.5 foot zone.</p>	B/W-28D@50-55				

← B/W-28S screened from 40 - 60 feet.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 4 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55								
		SM	<b>Silty Sand with Gravel (55 - 59)</b> Saturated, dense, no odor. Primarily medium to coarse sand with ~15% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand with Gravel (59 - 60)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
60		SM	<b>Silty Sand (60 - 63)</b> Moist, dense, no odor. Primarily coarse to fine sand with ~5% gravel to 25 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
		CL	<b>Sandy Lean Clay (63 - 65)</b> Dry, very dense, no odor. Primarily silt and clay with trace gravel and coarse sand to 10 mm and ~35% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, have a brown color (7.5YR 5/4), and have no reaction to strong reaction to HCl.					
65		CL	<b>Sandy Lean Clay (65 - 71)</b> Moist, dense, no odor. Primarily silt and clay with ~5% gravel to 25 mm and ~45% coarse to fine sand. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.					
70								
		SW	<b>Well-Graded Sand (71 - 72.5)</b> Saturated, very dense, no odor. Primarily coarse sand with ~10% gravel to 20 mm and ~10% silt and clay.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 5 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75		SM	<p>The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p> <p><b>Silty Sand (72.5 - 75)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>	BW-28D@70-75				
		SW	<p><b>Well-Graded Sand with Gravel (75 - 77)</b> Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have a strong reaction to HCl.</p>					
		SM	<p><b>Silty Sand (77 - 77.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.</p>					
		SM	<p><b>Silty Sand (77.5 - 80)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 25 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>					
80		SM	<p><b>Silty Sand (80 - 81.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>					
		SP-SM	<p><b>Poorly Graded Sand with Silt (81.5 - 86)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10 % silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>					
85								
		CL	<p><b>Sandy Lean Clay (86 - 86.5)</b> Moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 10 mm and ~30% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a strong reaction to HCl.</p>					
		SM	<p><b>Silty Sand (86.5 - 91)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have a weak reaction to HCl.</p>					
90								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 6 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95		SM	<b>Silty Sand (91 - 92.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (92.5 - 94.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (94.5 - 95)</b> Saturated, dense, no odor. Primarily medium to coarse sand with ~5% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt (95 - 98.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					B/W-28D screened from 95 to 115 feet.
100		CH	<b>Sandy Fat Clay (98.5 - 100)</b> Dry to moist, dense, no odor. Primarily silt and clay with ~5% gravel to 30 mm and ~15% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have moderate to high plasticity, are moderately tough, and have a strong reaction to HCl.					
		SW	<b>Well-Graded Sand with Gravel (100 - 101.5)</b> Saturated, loose, no odor. Primarily coarse sand with ~20% gravel to 15 mm and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (101.5 - 102.5)</b> Moist, dense, no odor. Primarily silt and clay with ~5% gravel to 10 mm and ~40% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SM						
		ML	<b>Silty Sand (102.5 - 104)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
105		CL	<b>Sandy Silt (104 - 105)</b> Dry to moist, dense, no odor. Primarily silt and clay with ~40% fine sand with a maximum grain size of 0.1 mm. The sand is subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		CL	<b>Sandy Lean Clay (105 - 107.5)</b> Dry to moist, dense, no odor. Primarily silt and clay with ~15% medium to fine grained sand with trace gravel sized to 10 mm. The sand and gravel are subangular to subrounded. The fines have moderate to high plasticity, are moderately tough, and do not react to HCl.					
110		CL	<b>Sandy Lean Clay (107.5 - 112)</b> Dry to moist, dense, no odor. Primarily silt and clay with ~5% gravel to 10 mm and ~30% medium to fine					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 7 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			grained sand. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (112 - 113)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have no reaction to a weak reaction to HCl.					
115		SC	<b>Clayey Sand (113 - 116)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse sand a gravel to 10 mm and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SM	<b>Silty Sand (116 - 116.5)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
		SC						
		ML	<b>Clayey Sand (116.5 - 117.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse sand a gravel to 10 mm and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
		SM						
120		SM	<b>Silty Sand (117.5 - 118.5)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.					
		SM	<b>Sandy Silt (118.5 - 120)</b> Moist, dense, no odor. Primarily silt and clay with ~2% gravel to 5 mm and ~43% medium to fine grained sand. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and have a weak reaction to HCl.					
		SM	<b>Silty Sand (120 - 121.5)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and have a strong reaction to HCl.					
125		SM	<b>Silty Sand (121.5 - 122.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with grain size to 2 mm and ~45% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and have a weak to strong reaction to HCl.					
			<b>Silty Sand (122.5 - 124.5)</b> Moist to saturated, dense, no odor. Primarily fine sand with a maximum grain size of 0.1 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and have a strong reaction to HCl.					
			<b>Silty Sand (124.5 - 125)</b> Saturated, dense, no odor. Primarily medium to fine					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: BW-28D

Sheet 8 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130		SM	<p>sand with a maximum grain size of 1 mm and ~15% silt and clay. The sand is angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.</p> <p><b>Silty Sand (125 - 130)</b> Moist to saturated, dense, no odor. Primarily fine sand with maximum grain size of 0.5 mm. The sand is subangular to subrounded. The fines have low to medium plasticity and toughness, and have a strong reaction to HCl.</p> <p><b>Silty Sand (130 - 134)</b> Saturated, dense, no odor. Primarily medium to fine sand with a maximum grain size of 1 mm and ~15% silt and clay. The sand is angular to subangular. The fines are nonplastic, and have no reaction to a weak reaction to HCl.</p>					
135		SC	<p><b>Clayey Sand (134 - 139)</b> Moist, dense, no odor. Primarily fine sand with ~40% silt and clay and trace coarse sand and gravel to 15 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, and have a strong reaction to HCl.</p>					
140		CL	<p><b>Sandy Lean Clay (139 - 140)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% medium to fine grained sand and ~5% gravel to 10 mm. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak reaction to HCl.</p>					
		CL	<p><b>Sandy Lean Clay (140 - 142)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~5% gravel to 5 mm and ~35% medium to fine grained sand. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.</p>					
		ML	<p><b>Silt (142 - 145)</b> Saturated, very dense, no odor. Primarily silt and clay with ~15% medium to fine grained sand and ~ 10% coarse sand with a maximum grain size of 1 mm. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.</p>					
145		SM	<p><b>Silty Sand (145 - 147)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% coarse grained sand and gravel to 5 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.</p>					
		SW	<p><b>Well-Graded Sand (147 - 157)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded.</p>	BW-28D@145-150				

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 9 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150			The fines are nonplastic, and do not react to HCl.					
155								
		CL	<b>Sandy Lean Clay (157 - 158)</b> Dry, dense, no odor. Primarily silt and clay with trace coarse sand and gravel to 10 mm and ~25% fine grained sand. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and have a weak to strong reaction to HCl.					
160		SC	<b>Clayey Sand (158 - 164)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.					
165		SC	<b>Clayey Sand with Gravel (164 - 168)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 35 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity with low toughness, and have a weak to strong reaction to HCl.					

B/W-28D screened from 150 to 170 feet.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 10 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170		SC	<b>Clayey Sand (168 - 170)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.	B/W-28D@168-173				
		SP-SM	<b>Poorly Graded Sand with Silt (170 - 171)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~ 10% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand (171 - 186)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 90 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity and toughness, and have a weak to strong reaction to HCl.					
175								
180								
185								
			<b>Silty Sand (186 - 193)</b>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

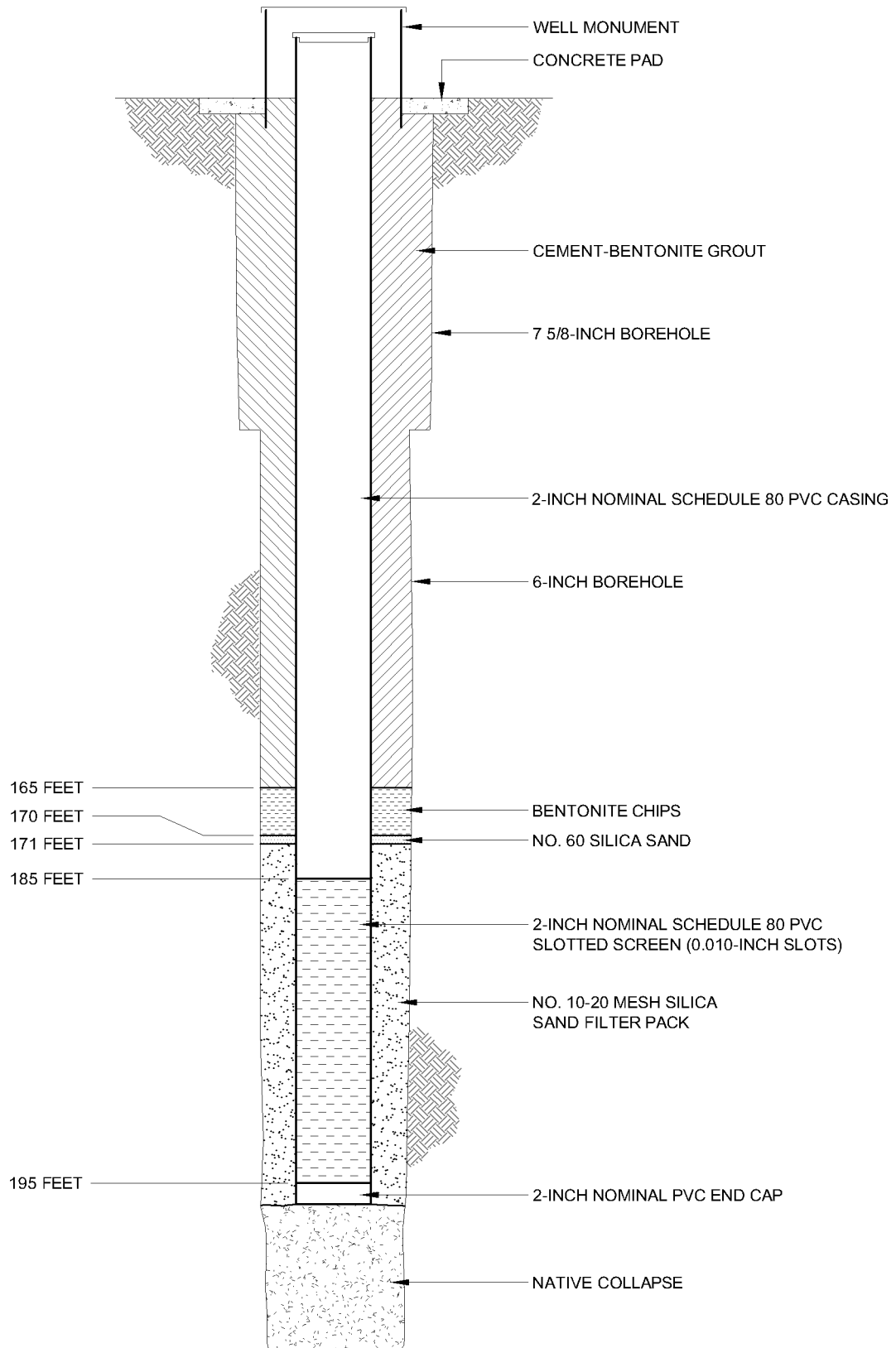
Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-28D

Sheet 11 of 11

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
190		SM	Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 40 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl. There are some clayey sand seams, up to 6-inches, which are more dense and have higher plasticity.					
195		SC	<b>Clayey Sand (193 - 199)</b> Moist, dense, no odor. Primarily coarse to fine sand with ~10% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl. There are some thin silty sand seams as above.	B/W-28D@189-194				
			Bottom of Borehole at 199 feet below ground surface.					



NOT TO SCALE

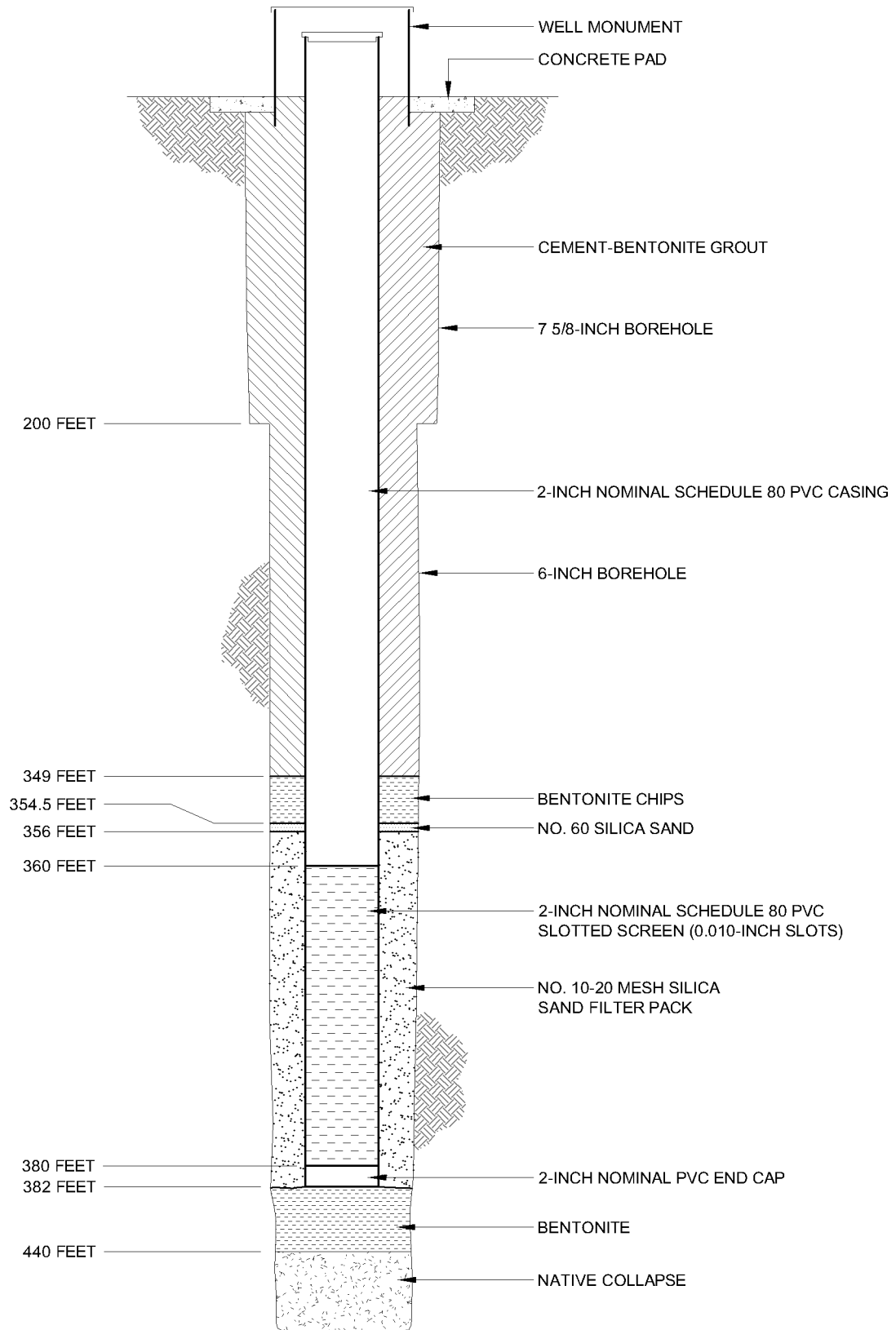
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-2912  
Construction Details**



NOT TO SCALE

**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-29D  
Construction Details**

## Carson City, Nevada

**Project Name:** Yerington Second Step Hydrogeologic Framework Assessment

**Project Number:** 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

**Boring/Well Number:** B/W-29D

Sheet 1 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			<b>Sulfide Tailings (0 - 3)</b> Dry, loose, no odor. Primarily medium to fine sand with ~25% gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.  Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.
5	4405		<b>Sulfide Tailings (3 - 5.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% silt and clay. The sand is subround. The fines are nonplastic, have a yellowish brown color, and do not react to HCl.					
10	4400		<b>Sulfide Tailings (5.5 - 49.5)</b> Dry, loose, no odor. Primarily medium to fine sand with ~10% silt and clay. The sand is subround. The fines are nonplastic, have a light grey color, and do not react to HCl. There are silty sand laminations throughout zone.					WELL DESIGN for B/W-29D: PVC Stickup: 2.94 feet. Cement - Bentonite Grout: 0-349 feet Bentonite Chips: 349-354.5 feet No. 60 Silica Sand: 354.5-356 feet #10-20 Silica Sand Filter Pack: 356-382 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 360-380 feet Native Collapse: 440-490 feet Additional Bentonite Fill: 382-440 feet  Number of wells at this location: 4 Screen intervals for paired wells are labeled at the installed depths.
	4395							



BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment Project Number: 132025

Soil Boring: Monitoring Well: X Piezometer: Boring/Well Number: B/W-29D Sheet 2 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
20	4390							
25	4385							
30	4380							

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 3 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35	4375							
40	4370							
45	4365							
50	4360	CH	<b>Fat Clay (49.5 - 52)</b> Moist, soft, no odor. Primarily silt and clay with no sand or gravel. Zone is the clay liner for the sulfide tailings. Has an olive gray to gray mottled color. Reacts strongly to HCl.					
		CL	<b>Lean Clay (52 - 56)</b> Moist, very soft, no odor. Primarily silt and clay with no sand or gravel. Zone is the clay liner for the sulfide					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 4 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55	4355		tailings. Has a gray color. Reacts strongly to HCl.					
		CH	<b>High Plasticity Clay (56 - 56.5)</b> Dry to moist, firm, no odor. Primarily silt and clay with no sand or gravel. Zone is the clay liner for the sulfide tailings. Has a brown color and does not react to HCl.					
		SC	<b>Clayey Sand (56.5 - 58)</b> Dry to moist, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to 7 mm and ~40% silt and clay. The gravel is subangular to subrounded and the sand is subrounded to rounded. The fines are nonplastic, have a brown color, and do not react to HCl.					
			<b>No Recovery (58 - 60)</b>					
60	4350	SM	<b>Silty Sand (60 - 61.5)</b> Dry to moist, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (61.5 - 64)</b> Moist, medium dense, no odor. Primarily medium to fine sand with no gravel and ~50% silt and clay. The sand is angular to subangular. The fines are nonplastic, and do not react to HCl.					
65	4345	CH	<b>Fat Clay (64 - 66)</b> Dry to moist, dense, no odor. Primarily silt and clay with no sand or gravel. The fines have moderate to high plasticity, are moderately tough, have a dark grey color, and do not react to HCl.					
		SM	<b>Silty Sand (66 - 67)</b> Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 2 mm and ~40% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		SP						
		ML	<b>Poorly Graded Sand (67 - 68)</b> Saturated, loose, no odor. Primarily medium to fine sand with no gravel and ~10% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, have a brown color, and do not react to HCl.					
70	4340	SW	<b>Sandy Silt (68 - 70)</b> Moist to saturated, firm, no odor. Primarily silt and clay with no gravel and ~15% fine grained sand. The fines are nonplastic, and do not react to HCl. There is a 4-inch seam of saturated sand at 69 feet.					
			<b>Well-Graded Sand (70 - 83.5)</b> Saturated, loose, no odor. Primarily coarse sand with ~5% gravel to 7 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 5 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75	4335		are nonplastic, and do not react to HCl.					
80	4330							
85	4325	SM	<b>Silty Sand (83.5 - 85.5)</b> Saturated, medium dense, no odor. Primarily coarse sand with a maximum grain size of 3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (85.5 - 88)</b> Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~30% silt and clay. There is no reaction to HCl.					
		CL	<b>Sandy Lean Clay (88 - 89.5)</b> Moist, dense, no odor. Primarily silt and clay with ~40% medium to fine grained sand. The sand is subrounded to rounded. The fines have medium plasticity and toughness, have a dark brown color, and do not react to HCl.					
90	4320	SM	<b>Silty Sand (89.5 - 92.5)</b> Saturated, loose, no odor. Primarily medium to fine sand with ~10% coarse sand and ~20% silt and clay. The sand is subrounded to rounded. The fines are					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 6 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			nonplastic, and do not react to HCl.					
95	4315	CL	<b>Sandy Lean Clay (92.5 - 96.5)</b> Moist, dense, no odor. Primarily silt and clay with ~40% medium to fine grained sand. The sand is subrounded to rounded. The fines have medium plasticity and toughness, have a dark brown color, and do not react to HCl.					
		CH	<b>Fat Clay (96.5 - 97.5)</b> Dry to moist, dense, no odor. Primarily silt and clay with ~5% fine grained sand. The fines have moderate to high plasticity, are moderately tough, and do not react to HCl.					
		CL						
		SP	<b>Sandy Lean Clay (97.5 - 98)</b> Dry to moist, dense, no odor. Primarily silt and clay with ~40% medium to fine grained sand. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
100	4310		<b>Poorly Graded Sand (98 - 103.5)</b> Saturated, loose, no odor. Primarily medium to fine sand with no gravel and ~10% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.	B/W-29@98-103				
		SM	<b>Silty Sand with Gravel (103.5 - 105)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 7 mm and ~40% silt and clay. The sand and gravel are subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
105	4305	SM	<b>Silty Sand (105 - 106)</b> Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to 10 mm and ~30% silt and clay. The gravel is subangular to subrounded and the sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		ML	<b>Sandy Silt (106 - 112)</b> Moist to saturated, dense, no odor. Primarily silt and clay with ~30% fine grained sand. The fines are nonplastic, and do not react to HCl.					
110	4300							

B/W-29S screened from 95 to 115 feet.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 7 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115	4295	SM	<b>Silty Sand (112 - 114)</b> Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to 5 mm and ~20% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (114 - 115)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~10% gravel to 10 mm and ~20% coarse grained sand. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CH	<b>Fat Clay (115 - 118.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with no gravel and trace fine grained sand. The fines have moderate to high plasticity, are very tough, and do not react to HCl.					
120	4290	SM	<b>Silty Sand (118.5 - 123.5)</b> Saturated, loose, no odor. Primarily fine sand with ~30% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		SP	<b>Poorly Graded Sand with Gravel (123.5 - 125)</b> Saturated, dense, no odor. Primarily coarse sand with ~15% gravel to 7mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
125	4285	SM	<b>Silty Sand (125 - 128.5)</b> Saturated, dense, no odor. Primarily coarse sand with ~5% gravel to 7mm, ~35% medium to fine grain sand and 20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (128.5 - 130)</b> Saturated, dense, no odor. Primarily medium to fine					

B/W-29I1 screened from 122 to 132 feet.

B/W-29@124-129

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 8 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130	4280	SM	<p>sand with ~5% gravel to 5 mm and 20% silt and clay. The gravel is subangular to subrounded and the sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.</p> <p><b>Silty Sand (130 - 135)</b> Moist to saturated, dense, no odor. Primarily fine sand with ~40% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl. There is a four-inch saturated medium grained sand seam at 132.5 feet bgs.</p>					
135	4275	SW	<p><b>Well-Graded Sand (135 - 136.5)</b> Saturated, loose, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The gravel is subrounded and the sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.</p>					
		SM	<p><b>Silty Sand (136.5 - 137.5)</b> Moist to saturated, loose, no odor. Primarily fine sand with ~40% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.</p>					
		SW	<p><b>Well-Graded Sand (137.5 - 138.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The gravel is subangular to subrounded and the sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.</p>					
140	4270	CL	<p><b>Silty Sand (138.5 - 140)</b> Saturated, loose, no odor. Primarily fine sand with ~40% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.</p> <p><b>Lean Clay (140 - 143.5)</b> Moist, firm, no odor. Primarily silt and clay with trace sand and gravel. The fines have moderate to high plasticity, are moderately tough, and do not react to HCl.</p>					
		ML	<p><b>Sandy Silt (143.5 - 144.5)</b> Moist to saturated, soft, no odor. Primarily silt and clay with ~30% medium to fine grain sand with a maximum grain size of 3 mm. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.</p>					
145	4265	CH	<p><b>Fat Clay (144.5 - 145.5)</b> Dry to moist, dense, no odor. Primarily silt and clay with trace sand and gravel. The fines have moderate to high plasticity, are very tough, and do not react to HCl.</p>					
		SP	<p><b>Poorly Graded Sand (145.5 - 149)</b> Saturated, loose, no odor. Primarily fine sand with ~15% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.</p>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150	4260	SC	<b>Clayey Sand (149 - 150)</b> Moist, dense, no odor. Primarily medium to fine sand with ~50% silt and clay. The fines are nonplastic, and do not react to HCl.					
		ML	<b>Silt (150 - 155)</b> Saturated, dense, no odor. Primarily silt and clay with ~5% gravel to 7 mm. The gravel is subangular. The fines are nonplastic, and do not react to HCl. There is a saturated orangish brown sand seam throughout the section.					
155	4255	SW	<b>Well-Graded Sand (155 - 160.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 7 mm and 10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-29@155-160				
160	4250	SM	<b>Silty Sand (160.5 - 165)</b> Moist to saturated, dense, no odor. Primarily fine sand with ~40% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
165	4245	SP	<b>Poorly Graded Sand (165 - 169)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~10% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl. There are silt laminations from 166-169 feet.					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet **10** of **26**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170	4240	MLS	<b>Sandy Silt (169 - 172.5)</b> Moist to saturated, dense, no odor. Primarily silt and clay with ~30% fine grained sand. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (172.5 - 173.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~30% coarse sand and ~20% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
175	4235	SP	<b>Poorly Graded Sand (173.5 - 176.5)</b> Saturated, loose, no odor. Primarily medium to fine sand with ~10% silt and clay. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (176.5 - 178.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 7mm and ~20% silt and clay. The gravel is subrounded and the sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
180	4230	MLS	<b>Sandy Silt (178.5 - 182)</b> Moist, dense, no odor. Primarily silt and clay with ~30% fine grained sand. The sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (182 - 184.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel and ~15% silt and clay. The sand and gravel are subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
185	4225	SM	<b>Silty Sand (184.5 - 185)</b> Moist to saturated, medium dense, no odor. Primarily fine sand with ~40% silt and clay. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (185 - 188.5)</b> Saturated, dense, no odor. Primarily coarse to fine					

B/W-29@172-177

← B/W-29I2 screened from 185 to 195 feet.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
			sand with ~5% gravel to 7 mm and ~20% silt and clay. The gravel is subrounded and the sand is subrounded to rounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (188.5 - 189.5)</b> Moist to saturated, with medium density. no odor. Primarily medium to fine sand with ~ 5% gravel to 7 mm, ~15% coarse grain sand and ~ 30% silt and clay. The gravel is subangular to subround and the sand is subangular to subround to round. The fines are nonplastic, and do not react to HCl.					
190	4220	SW	<b>Well-Graded Sand with Gravel (189.5 - 191)</b> Saturated, loose, no odor. Primarily medium to fine sand with ~15% gravel to 7 mm and ~15% silt and clay. The gravel is subangular to subounded and the sand is angular to subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		CL-ML	<b>Silty Clay (191 - 193.5)</b> Dry to moist, dense, no odor. Primarily silt and clay with no gravel and trace fine grained sand. The fines have low to medium plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (193.5 - 195)</b> Saturated, dense, no odor. Primarily fine sand with no gravel and ~30% silt and clay. The fines are nonplastic, and do not react to HCl.					
195	4215	SW	<b>Well-Graded Sand with Gravel (195 - 207)</b> Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to 10 mm and ~20% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
200	4210							
205	4205							

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 12 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
210	4200	SC	<b>Clayey Sand (207 - 208.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SW	<b>Well-Graded Sand (208.5 - 213)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
215	4195	SC	<b>Clayey Sand (213 - 214)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and have no reaction to a weak reaction to HCl.					
		SM	<b>Silty Sand (214 - 217.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~35% silty clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (217.5 - 220)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~15% silt and clay. The gravel is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
220	4190	CL	<b>Clayey Sand (220 - 222.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 2mm and ~40% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW-SM	<b>Well-Graded Sand (222.5 - 225)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 5mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-29@220-225				

# BORING LOG












Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet **13** of **26**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
225	4185	SM	<b>Silty Sand (225 - 230)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 0.5 mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
230	4180	SW	<b>Well-Graded Sand (230 - 232.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with a maximum grain size of 2 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (232.5 - 235)</b> Moist, very dense, no odor. Primarily medium to fine sand with a maximum grain size of 3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
235	4175	SC	<b>Clayey Sand (235 - 240)</b> Moist, very dense, no odor. Primarily medium to fine sand with no gravel and ~40% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
240	4170	SM	<b>Silty Sand (240 - 246)</b> Moist, very dense, no odor. Primarily medium to fine sand with a maximum grain size of 2 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

**Project Name:** Yerington Second Step Hydrogeologic Framework Assessment

**Project Number:** 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

**Boring/Well Number:** B/W-29D

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
245	4165							
		SP-SM	<b>Poorly Graded Sand with Silt (246 - 248.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with a maximum grain size of 1 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (248.5 - 251)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse grain sand to 3mm and ~35% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl. Section has silty lenses present.					
250	4160							
		SP-SM	<b>Poorly Graded Sand with Silt (251 - 253.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with with a maximum grain size of 1 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-29@250-255				
		SM	<b>Silty Sand (253.5 - 261)</b> Moist, very dense, no odor. Primarily medium to fine sand with a maximum grain size of 1 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
255	4155							
260	4150							
		SW	<b>Well-Graded Sand (261 - 267.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~15% coarse grain sand to 4mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG



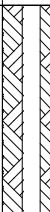
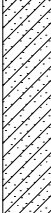

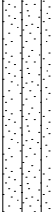
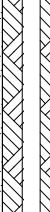


Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 15 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
265	4145			B/W-29@260-265				
		SC	<b>Clayey Sand (267.5 - 271.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with a maximum grain size of 0.5 mm and ~35% silt and clay. The sand is subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
270	4140							
		SM	<b>Silty Sand (271.5 - 279)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl. At 273.5 feet there is a fine sand lense.					
275	4135							
		SM	<b>Silty Sand (279 - 282)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
280	4130							

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet **16** of **26**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
285	4125	SC	<b>Clayey Sand (282 - 285.5)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (285.5 - 287)</b> Moist, very dense, no odor. Primarily fine sand with ~45% silt and clay. The sand is subangular to subrounded. The fines have low to medium plasticity and toughness, and do not react to HCl.					
290	4120	SW	<b>Well-Graded Sand (287 - 292.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-29@286-291				
295	4115	SP-SM	<b>Poorly Graded Sand with Silt (292.5 - 302.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Zone gets finer as it nears 300 feet.					
300	4110							

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 17 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
305	4105	SC	<b>Clayey Sand (302.5 - 306)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
310	4100	SM	<b>Silty Sand (306 - 310)</b> Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SW	<b>Well-Graded Sand (310 - 311.5)</b> Saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand (311.5 - 313)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
315	4095	SC	<b>Clayey Sand (313 - 320)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet **18** of **26**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
320	4090	SM	<b>Silty Sand (320 - 323)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.	B/W-29@321-372				
		SW-SM	<b>Well-Graded Sand with Silt (323 - 325.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% gravel to 25 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
325	4085	SM	<b>Silty Sand (325.5 - 328)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with a maximum grain size of 0.5 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (328 - 331)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with ~10% gravel to 50 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
330	4080	SC	<b>Clayey Sand (331 - 332)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (332 - 334)</b> Moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
335	4075		<b>(334 - 340)</b> No Recovery					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet **19** of **26**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
340	4070	SC	<b>Clayey Sand with Gravel (340 - 346)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 50 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
345	4065		<b>Well-Graded Sand with Clay (346 - 350)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
350	4060	SC	<b>Clayey Sand (350 - 358)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 50 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
355	4055							

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 20 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
360	4050	SM	<b>Silty Sand (358 - 365.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 5 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
365	4045	SP	<b>Poorly Graded Sand (365.5 - 366.5)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with no gravel and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SM	<b>Silty Sand with Gravel (366.5 - 368)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 70 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Starting to see some weathered granites, probably from alluvial activity.					
		SP	<b>Poorly Graded Sand (368 - 371)</b> Moist to saturated, dense, no odor. Primarily medium to fine sand with no gravel and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
370	4040	SC	<b>Clayey Sand with Gravel (371 - 376)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 100 mm and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
375	4035	SC	<b>Clayey Sand (376 - 383.5)</b> Dry to moist, very dense, no odor. Primarily medium					

← B/W-29D screened from 360 to 380 feet.

B/W-29@367-372

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 21 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
380	4030		to fine sand with ~10% gravel to 50 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have a reddish brown color, and do not react to HCl. The zone becomes dry at 381 feet.					
385	4025	SC	<b>Clayey Sand (383.5 - 385)</b> Moist, dense, no odor. Primarily medium to fine sand with ~5% gravel and ~30% silt and clay. The sand and gravel are subangular. The fines are nonplastic, and do not react to HCl.					
390	4020	SC	<b>Clayey Sand with Gravel (385 - 392)</b> Dry, very dense, no odor. Primarily coarse to fine sand with ~15% gravel to 10 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is angular to subangular to subrounded. The fines are nonplastic, have an orange brown color, and do not react to HCl.					
395	4015	CL	<b>Lean Clay with Sand and Gravel (392 - 397.5)</b> Dry to moist, very dense, no odor. Primarily silt and clay with ~20% gravel to 10 mm and ~20% coarse to fine grain sand. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

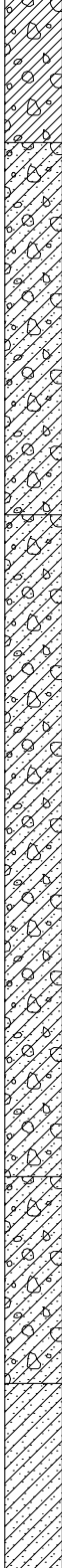

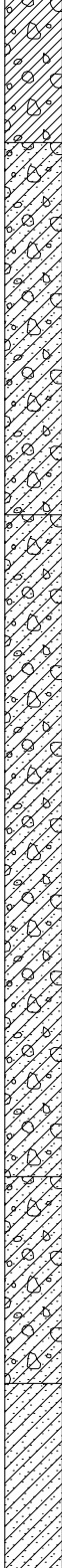

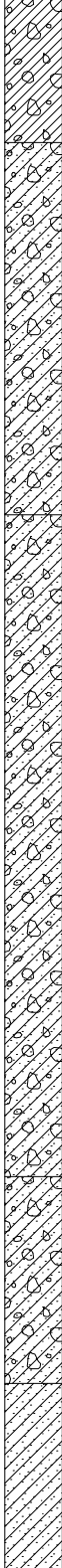

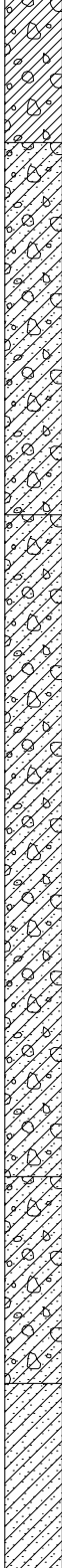

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 22 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
400	4010	SC	<b>Clayey Sand with Gravel (397.5 - 402)</b> Moist, very dense, no odor. Primarily silt and clay with ~20% medium to fine sand and ~25% gravel to 10 mm. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
405	4005	SC	<b>Clayey Sand with Gravel (402 - 410)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 50 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl. Zone has large clasts from alluvial fan.					
410	4000	SC	<b>Clayey Sand with Gravel (410 - 412.5)</b> Moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand (412.5 - 415)</b> Dry to moist, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

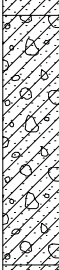

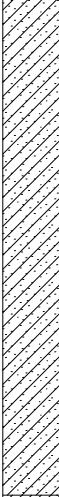




Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 23 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
415	3995	SC	<b>Clayey Sand with Gravel (415 - 418)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 50 mm and ~25% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (418 - 424)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
420	3990							
		CL	<b>Sandy Lean Clay (424 - 425)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
425	3985	SC	<b>Clayey Sand (425 - 428)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 70 mm and ~30% silt and clay. The gravel is angular to subangular. The fines are nonplastic, and do not react to HCl.					
		CL	<b>Sandy Lean Clay (428 - 429)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 70 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
430	3980		<b>(429 - 440)</b> No Recovery					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 24 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
435	3975							
440	3970	GC	<b>Clayey Gravel (440 - 450)</b> Dry, very dense, no odor. Primarily gravel to 70mm with ~25% medium to fine grain sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
445	3965							
450	3960	SC	<b>Clayey Sand with Gravel (450 - 451)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~30% silt and clay. The gravel is subangular to subround and the sand is angular to subangular. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand with Gravel (451 - 453)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 40 mm and ~30% silt and					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 25 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
455	3955	CL	clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Sandy Lean Clay (453 - 454)</b> Dry, very dense, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to 15 mm. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
			<b>Clayey Sand (454 - 457)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 30 mm and ~35% silt and clay. The gravel is subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
460	3950		<b>(457 - 461)</b> No Recovery					
		CL	<b>Sandy Lean Clay (461 - 466)</b> Dry, very dense, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% gravel to 20 mm. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl. 461.5 - 462 feet is a large chunk of what looks like highly weathered granite w/ high feldspar.					
465	3945		<b>(466 - 470)</b> No Recovery					
470	3940	SC	<b>Clayey Sand (470 - 476)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 15mm and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl. Starting to see					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-29D

Sheet 26 of 26

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
475	3935		larger rocks in core with large gravel size.					
		SC	<b>Clayey Sand (476 - 480)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
480	3930	GC	<b>Clayey Gravel with Sand (480 - 481)</b> Dry, very dense, no odor. Primarily gravel to 50 mm with ~35% medium to fine grain sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (481 - 483)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand (483 - 490)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
485	3925							
490	3920		Bottom of Borehole at 490 feet below ground surface.					

PRINT OR TYPE ONLY

WELL DRILLERS REPORT

Please complete this form in its entirety

NOTICE OF INTENT NO. 10-11-83

1. OWNER Anaconda Minerals ADDRESS AT WELL LOCATION Yearington, Nevada  
MAILING ADDRESS 555 17th Street  
Denver, Colorado 80202

2. LOCATION SW 1/4 SE 1/4 Sec. 32 T. 14 N 1/2 R. 25 E Lyon County

PERMIT NO. \_\_\_\_\_ Issued by Water Resources Parcel No. \_\_\_\_\_ Subdivision Name \_\_\_\_\_

3. TYPE OF WORK MONITOR

New Well ☐ Recondition ☐  
Deepen ☐ Other ☒

4. PROPOSED USE

Domestic ☐ Irrigation ☐ Test ☒  
Municipal ☐ Industrial ☐ Stock ☐

5. TYPE WELL

Cable ☐ Rotary ☒  
Other ☐

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thick-ness
Clay - silty		0	2	2
Sand - fine		2	7	5
Clay - silty		7	10	3
Sand - fine		10	15	5
Sand - well graded		15	18	3
Clay - silty		18	22	4
Sand - fine		22	27	5
Sand & clay		27	31	4
Sand - fine		31	34	3
Clay - silty		34	47	13
Sand & clay		47	57	10
Sand - gravelly		57	63	6
Clay - silty		63	64	1
Sand & clay		64	73	9
Clay - silty		73	75	2
Sand - well graded		75	80	5
Clay - silty		80	83	3
Sand - fine		83	88	5
Sand & clay		88	94	6
Clay - silty		94	98	4
Sand - fine		98	101	3
Clay - silty		101	103	2
Sand - fine		103	110	7
Clay - silty		110	113	3
Sand & clay		113	117	4
Clay - silty		117	120	3
Sand - fine		120	136	16

\*\* continued on page 2 \*\*

Date started 10-24, 1983  
Date completed 10-25, 1983

7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump

BAILER TEST

G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours  
G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours  
G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours

8. WELL CONSTRUCTION

Diameter hole 10 inches Total depth 155 feet

Casing record 7 ft. of 10"

Weight per foot \_\_\_\_\_ Thickness 1/4"

Diameter	From	To
<u>10</u> inches	<u>0</u> feet	<u>7</u> feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet

Surface seal: Yes ☒ No ☐ Type cement

Depth of seal 98 feet

Gravel packed: Yes ☒ No ☐

Gravel packed from 98 feet to 151 feet

gravel & bentonite backfill 151' to 155'

Perforations:

Type perforation screened

Size perforation \_\_\_\_\_

From Blank 0 feet to 108 feet

From screened 108 feet to 151 feet

From Blank 151 feet to 155 feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

9. WATER LEVEL

Static water level 2.8 feet below land surface

Flow \_\_\_\_\_ G.P.M. \_\_\_\_\_ P.S.I.

Water temperature \_\_\_\_\_ ° F. Quality \_\_\_\_\_

10. DRILLERS CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Lang Exploratory Drilling (Alan Lang Well

Contractor Pump Inc.)

Address 185 W. 3300 So. SLC, Utah 84115

Contractor

Nevada contractor's license number 016675

Nevada contractor's drillers number 020710

Nevada driller's license number 1366

Actual Driller

Signed

ALAN LANG

Contractor

Date

4-30-84

**Please complete this form in its entirety**

NOTICE OF INTENT NO.....

3. TYPE OF WORK		4. PROPOSED USE			5. TYPE WELL	
New Well <input type="checkbox"/>	Recondition <input type="checkbox"/>	Domestic <input type="checkbox"/>	Irrigation <input type="checkbox"/>	Test <input type="checkbox"/>	Cable <input type="checkbox"/>	Rotary <input type="checkbox"/>
Deepen <input type="checkbox"/>	Other <input type="checkbox"/>	Municipal <input type="checkbox"/>	Industrial <input type="checkbox"/>	Stock <input type="checkbox"/>	Other <input type="checkbox"/>	

[illegible]

Diameter hole ..... inches      Total depth ..... feet

Casing record .....

Weight per foot ..... Thickness .....

Diameter	From	To
..... inches	..... feet	..... feet
..... inches	..... feet	..... feet
..... inches	..... feet	..... feet
..... inches	..... feet	..... feet
..... inches	..... feet	..... feet
..... inches	..... feet	..... feet

Surface seal: Yes ☐ No ☐ Type .....

Depth of seal ..... feet

Gravel packed: Yes ☐ No ☐

Gravel packed from ..... feet to ..... feet

Perforations:

Type perforation .....

Size perforation .....

From ..... feet to ..... feet

From ..... feet to ..... feet

From ..... feet to ..... feet

From ..... feet to ..... feet

From ..... feet to ..... feet

*Page 2 of 3 W-32DC*

Static water level .....feet below land surface  
Flow .....G.P.M. ....P.S.I.  
Water temperature .....° F. Quality .....

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name ..... Contractor

Address.....  
Contractor.....

Nevada contractor's license number \_\_\_\_\_

Nevada contractor's drillers number \_\_\_\_\_

Nevada driller's license number \_\_\_\_\_ Actual Driller

Signed.....  
Contractor

Date.....

Pump RPM	G.P.M.	Draw Down	After Hours Pump

G.P.M. .... Draw down.....feet .....hours  
G.P.M. .... Draw down.....feet .....hours  
G.P.M. .... Draw down.....feet .....hours

WELL DRILLERS REPORT

Please complete this form in its entirety

5DB page 1

OFFICE USE ONLY

Log No. 25339

Permit No. 212

Basin, MASON V. 9-108

files

PRINT OR TYPE ONLY

NOTICE OF INTENT NO. 10-11-83

1. OWNER Anaconda Minerals ADDRESS AT WELL LOCATION \_\_\_\_\_  
MAILING ADDRESS 555 17th Street Yearington, Nevada  
Denver, Colorado 80202

2. LOCATION NW  $\frac{1}{4}$  SE  $\frac{1}{4}$  Sec. 5 T. 13N N  $\frac{1}{2}$  R. 25 E Lyon County

PERMIT NO. \_\_\_\_\_ Issued by Water Resources Parcel No. \_\_\_\_\_ Subdivision Name \_\_\_\_\_

3. TYPE OF WORK MONITOR

New Well ☐ Recondition ☐  
Deepen ☐ Other ☒

4. PROPOSED USE

Domestic ☐ Irrigation ☐  
Municipal ☐ Industrial ☐ Stock ☐

5. TYPE WELL

Cable ☐ Rotary ☒  
Other ☐

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thick-ness
Man made - mine waste		0	14	14
Clay - silty		14	23	9
Sand & gravel		23	30	7
Clay - silty		30	33	3
Sand & gravel		33	35	2
Clay - silty		35	37	2
Sand & gravel		37	40	3
Clay - silty		40	41	1
Sand & gravel		41	46	5
Sand & gravel		46	52	6
Clay - silty		52	63	11
Sand - well graded		63	68	5
Clay - silty		68	70	2
Sand & gravel		70	73	3
Clay - silty		73	84	11
Sand & clay		84	91	7
Clay - silty		91	95	4
Sand - well graded		95	103	8
Sand - fine		103	111	8
Clay - silty		111	115	4
Sand & clay		115	122	7
Clay - silty		122	125	3
Sand - fine		125	131	6
Sand - well graded		131	136	5
Sand - fine		136	150	14
Clay - silty		150	153	3
Sand - fine		153	159	6

\*\* continued on page 2 \*\*

Date started 10-18- 19 83  
Date completed 10-20 19 83

7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump

BAILER TEST

G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours  
G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours  
G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours

8. WELL CONSTRUCTION

Diameter hole 10 inches Total depth 266 feet

Casing record 14 ft. of 10"

Weight per foot \_\_\_\_\_ Thickness 1/4"

Diameter	From	To
<u>10</u> inches	<u>0</u> feet	<u>14</u> feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet

Surface seal: Yes ☒ No ☐ Type cement

Depth of seal 108 feet

Gravel packed: Yes ☐ No ☒

Gravel packed from \_\_\_\_\_ feet to \_\_\_\_\_ feet  
caved zone from 108' to 266'

Perforations:

Type perforation screened

Size perforation \_\_\_\_\_

From Blank 0 feet to 123 feet

From screened 123 feet to 153 feet

From Blank 153 feet to 266 feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

9. WATER LEVEL

Static water level 13.0 feet below land surface

Flow \_\_\_\_\_ G.P.M. \_\_\_\_\_ P.S.I.

Water temperature \_\_\_\_\_ ° F. Quality \_\_\_\_\_

10. DRILLERS CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Lang Exploratory Drilling (Alan Lang Well & Pump Inc.)  
Contractor

Address 185 W. 3300 So. SLC, Utah 84115  
Contractor

Nevada contractor's license number 016675

Nevada contractor's drillers number 020710

Nevada driller's license number 1366  
Actual Driller

Signed Alan Lang Contractor

Date 4-30-84



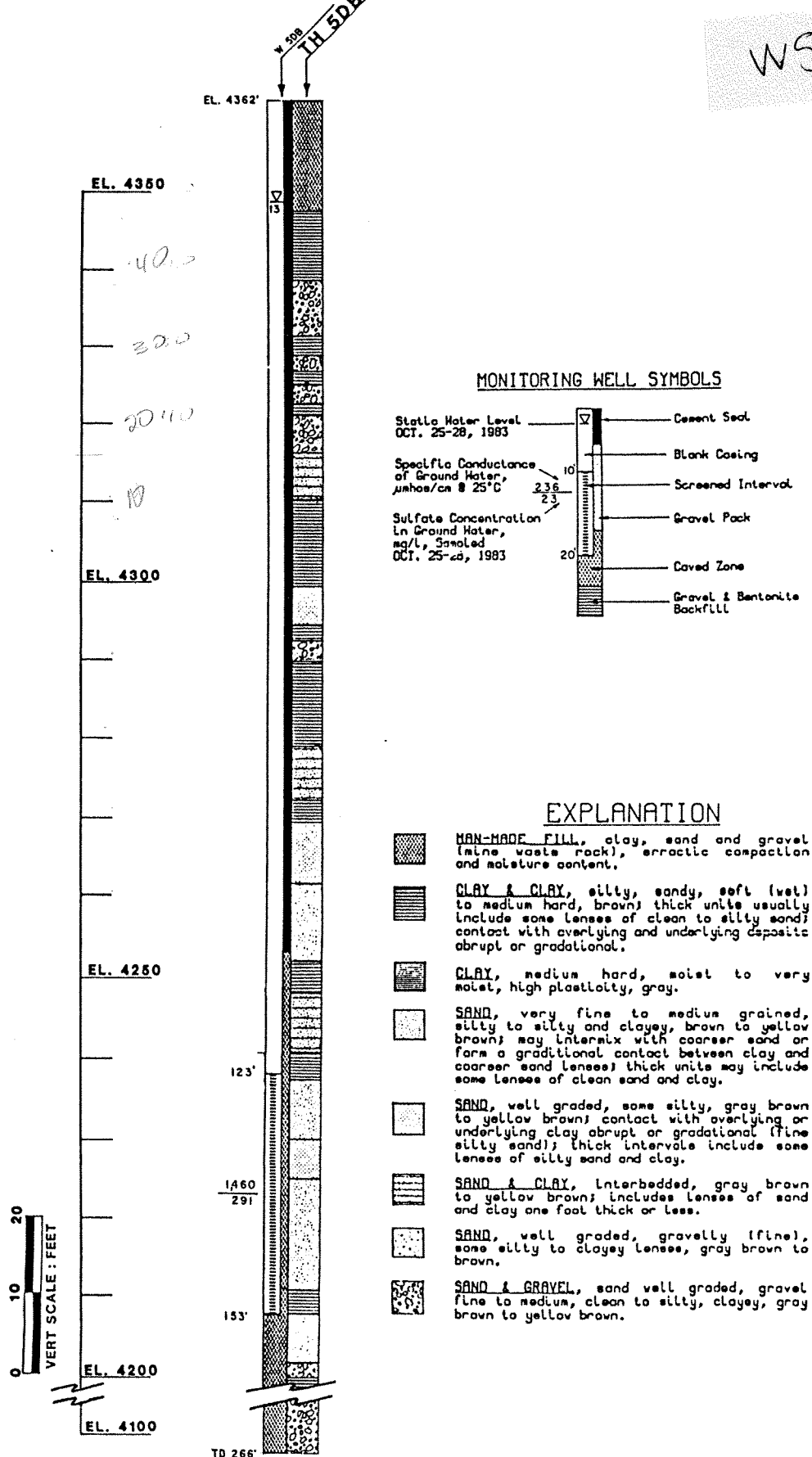
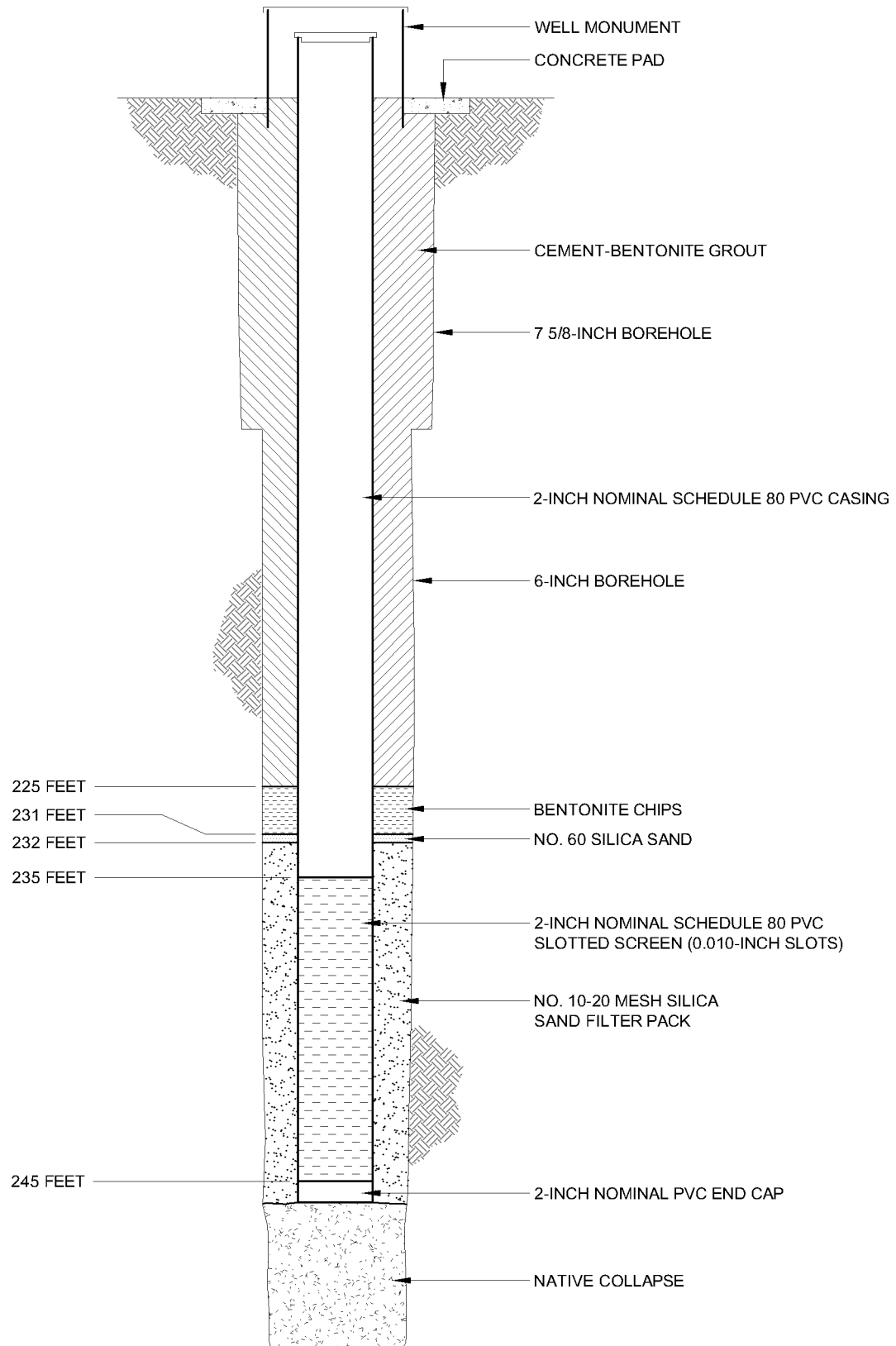


Figure 18 Well Completion Details and Lithologic Log for W5DB Well Site



NOT TO SCALE

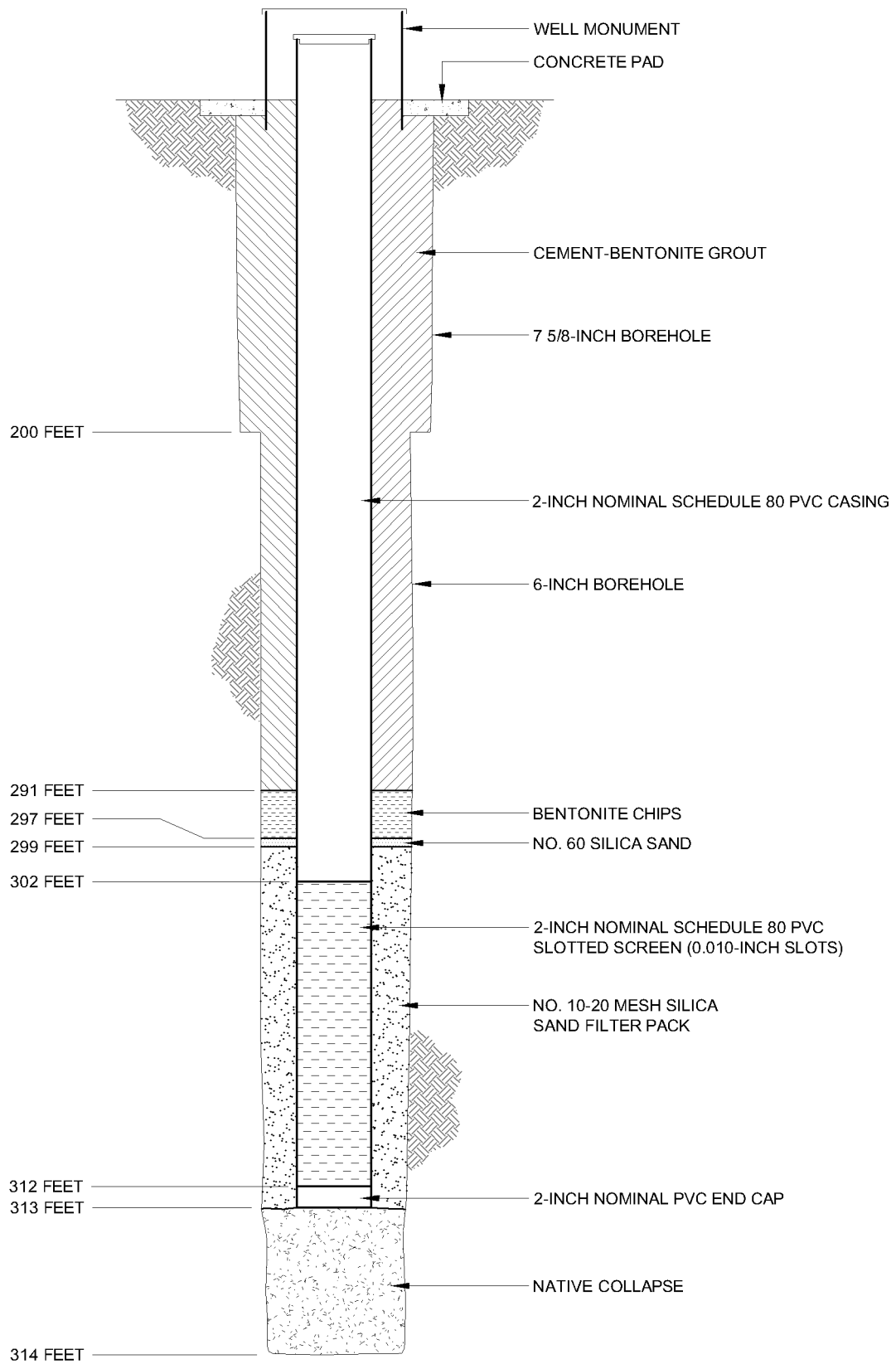
**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-11D3  
Construction Details**



**BROWN AND  
CALDWELL**

Date: March 2008

Atlantic Richfield  
Company

Project: 134557

**Well B/W-23  
Construction Details**



Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐Monitoring Well: ☒Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 1 of 17

<b>Boring Location:</b> Directly North of Weed Heights.		<b>Northing:</b>	<b>Easting:</b>
<b>Drilling Contractor:</b> Boart Longyear	<b>Driller:</b> R. Salois	<b>Top of PVC Elevation:</b> feet amsl	
<b>Drilling Equipment:</b> GP24-300RS	<b>Borehole Diameter:</b> 6-inches	<b>Ground Surface Elevation:</b> feet amsl	
<b>Drilling Method:</b> Sonic	<b>Drilling Fluid:</b> Water	<b>Date Started:</b> 7/25/07	<b>Date Finished:</b> 8/8/07
<b>Sampling Method:</b> Core Barrel		<b>Completed Depth:</b> 314 fbgs	<b>Water Depth:</b> fbmp
<b>Well Seal:</b> Bentonite and Cement		<b>WELL CONSTRUCTION</b>	
<b>Logged By:</b> P. Spillers, R. Banda, and C. Strauss		<b>Type and Diameter of Well Casing:</b> 2-inch Schedule 80 PVC	
		<b>Slot Size:</b> 0.010 inch	<b>Filter Material:</b> #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
5		SM	<b>Silty Sand with Gravel (0 - 8)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to 90 mm with ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a weak to strong reaction to HCl.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.  Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.  Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.  All depths are below land surface unless stated otherwise.  <b>WELL DESIGN for B/W-23:</b> PVC Stickup: feet. Cement - Bentonite Grout: 0 - 291 feet Bentonite Chips: 291 - 297 feet No. 60 Silica Sand: 297 - 299 feet #10-20 Silica Sand Filter Pack: 299 - 313 feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: 302 - 312 feet Native Collapse: 313 - 314 feet Additional Bentonite Fill: NA feet
10		GP-GM	<b>Poorly Graded Gravel with Silt and Sand (8 - 15)</b> Dry, dense, no odor. Primarily gravel to 60 mm with ~35% medium to fine grained sand and 5-10% silt and clay. The sand and gravel are angular to subangular. The fines have no plasticity and low toughness, and have a weak to strong reaction to HCl.					Number of wells at this location: 1 Screen intervals for paired wells are labeled at the installed depths.

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 2 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
20		SM	<b>Silty Sand (15 - 16)</b> Dry, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak reaction to HCl.					
		GP-GM	<b>Poorly Graded Gravel with Silt and Sand (16 - 18)</b> Dry, dense, no odor. Primarily gravel to 40 mm with ~30% medium to fine grained sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
		SC	<b>Clayey Sand with Gravel (18 - 29)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 40 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have no reaction to a weak reaction to HCl.					
25								
30		SM	<b>Silty Sand (29 - 38)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 3 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
35								
		SC	<b>Clayey Sand (38 - 41)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low to medium plasticity with low toughness, and have a strong reaction to HCl.					
40		SM	<b>Silty Sand (41 - 44)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and have no reaction to strong reaction to HCl.					
		SW-SM	<b>Well-Graded Sand with Silt and Gravel (44 - 50)</b> Dry to slightly moist, dense, no odor. Primarily coarse to fine sand with ~20% gravel to 70 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a weak to strong reaction to HCl.					
45								
		SM	<b>Silty Sand with Gravel (50 - 52)</b> Dry to slightly moist, dense, no odor. Primarily medium to fine sand with ~20% gravel to 70 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and have a weak to strong reaction to HCl.					
50		SC	<b>Clayey Sand with Gravel (52 - 58)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and ~20% silt and clay.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 4 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
55			The sand and gravel are angular to subangular. The fines have low to medium plasticity with low toughness, and have a weak to strong reaction to HCl.					
60		SC	<b>Clayey Sand (58 - 61)</b> Dry, loose to dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak reaction to HCl.					
65		SC	<b>Clayey Sand (61 - 69)</b> Dry, loose to dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and have a weak reaction to HCl.					
70		SC	<b>Clayey Sand with Gravel (69 - 75)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 90 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl. Zone has some large gravel or small cobbles.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 5 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
75		GC	<b>Clayey Gravel with Sand (75 - 92)</b> Dry, very dense, no odor. Primarily gravel to 100 mm with ~25% medium to fine grained sand and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl. Six-inch diameter cobble at 85 feet.					
80								
85								
90								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 6 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
95		SC	<b>Clayey Sand with Gravel (92 - 94)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 40 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand with Gravel (94 - 97)</b> Dry, dense, no odor. Primarily medium to fine sand with ~20% gravel and cobbles to 90 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
100		SC	<b>Clayey Sand with Gravel (97 - 100)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 50 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl. Zone has some small, highly plastic clay lumps.					
105		GC	<b>Clayey Gravel (100 - 117)</b> Dry, very dense, no odor. Primarily gravel to 200 mm and some cobbles up to 6-inch diameter. Also, ~10% medium to fine grained sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
110								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 7 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115								
		SC	<b>Clayey Sand with Gravel (117 - 119)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
120		GM	<b>Silty Gravel with Sand (119 - 121)</b> Dry, very dense, no odor. Primarily gravel to 120 mm with some cobbles, ~30% medium to fine grained sand, and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand (121 - 125)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
125		SC	<b>Clayey Sand with Gravel (125 - 126)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 30 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl. Zone has some highly plastic clay lumps which look tuffaceous.					
		SC						
		SP-SM	<b>Clayey Sand (126 - 127)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
		SM						
			<b>Poorly Graded Sand with Silt (127 - 128)</b>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet **8** of **17**

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
130			<p>Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, and do not react to HCl.</p>					
		SC	<p><b>Silty Sand (128 - 131)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.</p> <p><b>Clayey Sand (131 - 140)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.</p>					
135								
		SC	<p><b>Clayey Sand (140 - 143)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.</p>					
140								
		GM	<p><b>Silty Gravel with Sand (143 - 148)</b> Dry, very dense, no odor. Primarily gravel to 70 mm with ~25 medium to fine grained sand and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl. There are some clay lumps and rocks that look tuffaceous.</p>					
145								



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 9 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150		SC	<b>Clayey Sand (148 - 150)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand with Gravel (150 - 153)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
155		SC	<b>Clayey Sand (153 - 156)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
		SM	<b>Silty Sand with Gravel (156 - 162)</b> Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
160								
		SM	<b>Silty Sand (162 - 165)</b> Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 25 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl.					
165		SC	<b>Clayey Sand (165 - 176)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm with ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines have moderate to high plasticity, is very tough, and do not react to HCl. Ends with a gravel zone from 175-176 feet.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 10 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
170								
175								
180		GC	<b>Clayey Gravel with Sand (176 - 181)</b> Dry, dense, no odor. Primarily gravel to 50 mm with ~35% medium to fine grained sand and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic to low plasticity, is very tough, and do not react to HCl.					
		SM	<b>Silty Sand (181 - 183)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
		GM	<b>Silty Gravel with Sand (183 - 184)</b> Dry, very dense, no odor. Primarily gravel to 90 mm with some rounded cobbles. Also, ~30% medium to fine grained sand and ~20% silt and clay. The gravel is subangular to rounded and the sand is angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
185		SM						
		SM	<b>Silty Sand (184 - 185.5)</b> Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is					



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 12 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
210		SM	<b>Boulder (206 - 207.5)</b> Dry, very dense, no odor. Primarily fine sand with ~20% gravel. Zone includes a 12-inch cobble/boulder and ~30% fines. The fines are very grey and have the same consistency as the cobble. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
			<b>Silty Sand with Gravel (207.5 - 210)</b> Dry, dense, no odor. Primarily medium to fine sand with ~20% gravel to 60 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
			<b>Boulders (210 - 214)</b> Dry, very dense, no odor. Large boulder zone -- fines are gray powder from rock. May be one large boulder or may boulders with diameters > 12-inches.					
215		SC	<b>Clayey Sand with Gravel (214 - 215)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.					
			<b>(215 - 217)</b> Dry, very dense, no odor. Large boulder zone -- fines are gray powder from rock. May be one large boulder or may boulders with diameters > 12-inches.					
		SC	<b>Clayey Sand with Gravel (217 - 219.5)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 35 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.					
220		GW-GC	<b>Clayey Gravel with Sand (219.5 - 223.5)</b> Dry, very dense, no odor. Primarily gravel to 6-inches with ~20% medium to fine sand and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have low to medium plasticity and toughness, and do not react to HCl.					
		SC	<b>Clayey Sand (223.5 - 225)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 10 mm and ~35% silt and clay.					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐ Monitoring Well: ☒ Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 13 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
225		SM	<p>The gravel is angular to subangular and the sand is subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.</p> <p><b>Silty Sand with Gravel (225 - 228)</b>            Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 30 mm and ~15% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines are nonplastic to low plasticity and toughness, and do not react to HCl. Zone has a few thin silty clay interbeds.</p>					
230		SC	<p><b>Clayey Sand with Gravel (228 - 235)</b>            Dry, dense, no odor. Primarily medium to fine sand with ~20% gravel to 30 mm and ~30% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines have low to medium plasticity and toughness, and do not react to HCl.</p>					
235		GW-GC	<p><b>Well-Graded Gravel with Clay and Sand (235 - 241)</b>            Dry, very dense, no odor. Primarily gravel to 70 mm with ~15% medium to fine grained sand with ~35% silt and clay. The sand and gravel are angular to subangular. The fines have low to medium plasticity, are very tough, and do not react to HCl.</p>					
240			<p><b>Boulder (241 - 243)</b>            Dry, very dense, no odor. Boulder consists of silicous volcanic rock with lithic fragments.</p>					
		SC	<p><b>Clayey Sand (243 - 244)</b></p>					

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 14 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
245		SC	<p>Dry, very dense, no odor. Primarily medium to fine sand with ~5% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and do not react to HCl.</p> <p><b>Silty Sand (244 - 246)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~20% silt and clay. The gravel is angular to subangular and the sand is subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.</p>					
		GC	<p><b>Clayey Gravel with Sand (246 - 247)</b> Dry, very dense, no odor. Primarily gravel to 30 mm with ~25% medium to fine grained sand and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, and do not react to HCl.</p>					
		SC	<p><b>Clayey Sand with Gravel (247 - 249)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 35 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.</p>					
250			<p><b>Boulder (249 - 251.5)</b> Dry, very dense, no odor. Boulder consists of silicous volcanic rock with lithic fragments.</p>					
		SC	<p><b>Clayey Sand (251.5 - 253)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.</p>					
			<p><b>Boulders (253 - 255)</b> Dry, very dense, no odor. Boulder consists of silicous volcanic rock with lithic fragments.</p>					
255		SC	<p><b>Clayey Sand with Gravel (255 - 256)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 20 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, and do not react to HCl.</p>					
			<p><b>Boulders (256 - 263)</b> Dry, very dense, no odor. Boulder consists of silicous volcanic rock with lithic fragments.</p>					
260								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025


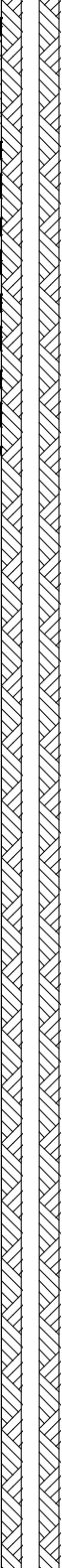
Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 15 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
265		SC	<b>Clayey Sand with Gravel (263 - 264)</b> Dry, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low to medium plasticity with low toughness, and do not react to HCl.					
270								
275								
280								

# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 16 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
285								
290								
295								
300								



# BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment

Project Number: 132025

Soil Boring: ☐

Monitoring Well: ☒

Piezometer: ☐

Boring/Well Number: B/W-23

Sheet 17 of 17

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
305								
310								
			Bottom of Borehole at 314 feet below ground surface.					

# WELL LOG AND REPORT TO THE STATE ENGINEER OF NEVADA

PLEASE COMPLETE THIS FORM IN ITS ENTIRETY

Log No. 11279  
 Rec. 19  
 Well No. WW 36  
 Permit No. 25329  
 Do not fill in

Owner THE ANACONDA COMPANY Driller THE ANACONDA COMPANY  
 Address Weed Heights, Nevada 89443 Address Weed Heights, Nev. 89443 Lic. No. \_\_\_\_\_  
 Location of well: SE 1/4 SE 1/4 Sec. 16, T13 N R25 E, in Lyon County  
 or \_\_\_\_\_  
 Water will be used for Milling, Mining, Domestic Total depth of well 300'  
 Size of drilled hole 20"  $\phi$  Weight of casing per linear foot 18" - 47 lbs.  
 Thickness of casing 1/4" Temp. of water 62°  
 Diameter and length of casing 20" to 178', 18" to 300'  
 (Casing 12" in diameter and under give inside diameter; casing 12" in diameter give outside diameter.)  
 If flowing well give flow in c.f.s. or g.p.m. and pressure \_\_\_\_\_  
 If nonflowing well give depth of standing water from surface 60'  
 If flowing well describe control works \_\_\_\_\_  
 (Type and size of valve, etc.) \_\_\_\_\_  
 Date of commencement of well February 1, 1969 Date of completion of well April 15, 1969  
 Type of well rig Bucyrus-Erie 42 T. Churn Drill

## LOG OF FORMATIONS

From feet	To feet	Thickness feet	Type of material	Water-bearing Formation, Casing Perforations, Etc.
0	60	60	Gravel	Chief aquifer (water-bearing formation)
60	300	240	Porphyry	from <u>60</u> to <u>300</u> ft.
				Other aquifers _____
				_____
				_____
				First water at <u>60</u> feet.
				Casing perforated
				from <u>100</u> to <u>300</u> ft.
				Size of perforations
				<u>1/4" x 10"</u>

From feet	To feet	Thickness	Type of material
			WW-36

Diam. casing	From feet	To feet	Length	"Remarks"—Seals, Grouting, Etc.
20"	0	178	178	15 cu. yds. pea gravel around top of casing.
18"	0	300	300	may have pulled 20"

[illegible]

**Dated**....., 19.....

Log No. 12835

Permit No. \_\_\_\_\_

Basin Mason Valley CRD

## WELL DRILLERS REPORT

Please complete this form in its entirety

1. OWNER The Anaconda Co. ADDRESS Weed Heights, Nev.2. LOCATION Co Well #59 North end of Pit.  
PERMIT NO. Mine drainage Well3. TYPE OF WORK  
New Well ☒ Recondition ☐  
Deepen ☐ Other ☐  
4. PROPOSED USE DRAIN  
Domestic ☐ Irrigation ☐ Test ☐  
Municipal ☐ Industrial ☒ Stock ☐  
5. TYPE WELL  
Cable ☐ Rotary ☒  
Other ☐

## 6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thick-ness
<u>Buff Volcanic</u>		<u>0</u>	<u>80</u>	<u>80</u>
<u>Dark Volcanic Rock</u>				
<u>streaks gray clay</u>		<u>80</u>	<u>112</u>	<u>32</u>
<u>Hard Gray green</u>				
<u>Rock</u>		<u>112</u>	<u>126</u>	<u>14</u>
<u>Volcanic fragments</u>				
<u>Brown - Red - Green</u>		<u>126</u>	<u>205</u>	<u>79</u>
<u>Brown - Gray Green</u>				
<u>Rock mix</u>	<u>X?</u>	<u>205</u>	<u>242</u>	<u>37</u>
<u>Tan Brown - Green</u>				
<u>Firm Rock</u>		<u>242</u>	<u>385</u>	<u>143</u>
<u>Firm Gray Green Rock</u>		<u>385</u>	<u>422</u>	<u>37</u>
<u>Hard - Dark Gray</u>		<u>422</u>	<u>445</u>	<u>23</u>
<u>Hard Gray Green Rock</u>		<u>445</u>	<u>518</u>	<u>73</u>
<u>Very Hard Dark Gray</u>		<u>518</u>	<u>551</u>	<u>33</u>
<u>Soft - Gray Green</u>		<u>551</u>	<u>574</u>	<u>23</u>
<u>Firm to Hard</u>				
<u>Gray Green Rock</u>		<u>574</u>	<u>632</u>	<u>58</u>

## 8. WELL CONSTRUCTION

Diameter hole 17 1/4 inches Total depth 630 feetCasing record 630' 12 3/4"Weight per foot \_\_\_\_\_ Thickness 1/4"

Diameter	From	To
<u>12 3/4</u> inches	<u>0</u> feet	<u>632</u> feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet
_____ inches	_____ feet	_____ feet

Surface seal: Yes ☐ No ☒ Type \_\_\_\_\_

Depth of seal \_\_\_\_\_ feet

Gravel packed: Yes ☒ No ☐Gravel packed from 0 feet to 630 feet

## Perforations:

Type perforation Torch CutSize perforation APPROX 1/8" x 6"From 240 feet to 630 feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

From \_\_\_\_\_ feet to \_\_\_\_\_ feet

## 9. WATER LEVEL

Static water level 235 Feet below land surface

Flow \_\_\_\_\_ G.P.M.

Water temperature \_\_\_\_\_ ° F. Quality \_\_\_\_\_

## 10. DRILLERS CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Fred Ash & Son'sAddress 1211 Castroville Blvd. Salinas Calif.Nevada contractor's license number 10097Nevada driller's license number 629Signed Edward J. AshDate Nov. 28 1922

## 7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump
<u>NO</u>	<u>DIRTY 2 W 10 S</u>		

## BAILER TEST

G.P.M. NO Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours  
 G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours  
 G.P.M. \_\_\_\_\_ Draw down \_\_\_\_\_ feet \_\_\_\_\_ hours